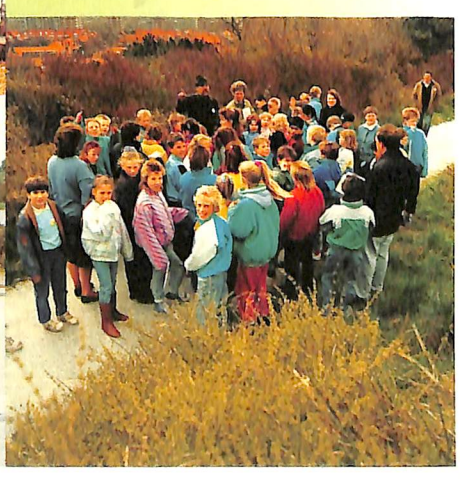
Nature Policy Plan of the Netherlands



Due to its specific physical character, the Netherlands has a large number of internationally important ecosystems and landscape types. The Dutch government's policy aims to manage and conserve this variety of nature and landscape. In spite of the efforts of past years, the populations of plants and animals have declined. This deterioration is especially serious since the rate of decline has not slowed down. Important in this respect are not only the creation of physical barriers and loss of acreage due to new urban developments, but also the impact of environmental pollution on ecosystems. Therefore, the sustainability of ecological and landscape values in the Netherlands is not ensured.

The main objective of the Dutch government's nature conservation policy, laid down in this abridged version of the Nature Policy Plan, is the sustainable conservation, rehabilitation and development of nature and landscape, in the Netherlands, and - in the perspective of our international responsibility - also in the field of international nature conservation policy. Therefore, the chapter on international policy of the original plan has been translated in full.

The Nature Policy Plan contains a long-term strategy. It sets out the objectives and outlines of the government's nature and landscape policy for a period of approximately thirty years. However we will start immediately: in the coming eight years 37 projects and 42 action issues will be implemented. Also, the realization of the national ecological network will be started.

The national ecological network is a coherent network of areas, forming a durable basis for the ecosystems and species considered important in an (inter)national context. The network consists of core areas, nature development areas and ecological corridors. Their sustainable development is supported by a buffer policy aimed at removing or minimizing negative external influences on the core areas.

Nature development is a new element in Dutch nature policy. Nature and landscape offer possibilities to create and develop new nature areas. Important in this concept is the development of an axis of wetlands in the Netherlands, which is in line with the international position of the Netherlands with regard to wetlands. Soon the Ministry report "Nature Development" will be available in the English language.

The Dutch government is implementing international policy on nature conservation by means of international co-operation in the field of nature conservation policy proper, and by introducing ecological considerations into other relevant foreign policies (on development assistance, agriculture, trade, tourism, etc.).

The Nature Policy Plan focuses on wetlands, tropical forests, offshore seas, coastal zones, Antarctica, migratory birds and large animal species such as whales.

The new Dutch nature conservation policy requires additional financial efforts with regard to the acquisition of land, management activities, and the subsidization of research, (international) projects and non-governmental organizations. To my Ministry the intensification of policy efforts means an extra half a billion guilders in the first five years. The intensification will be mainly aimed at area conservation based on the national ecological network, the species policy, the general nature and landscape policy, and the international nature conservation policy.

The State Secretary
for Agriculture, Nature Management and Fisheries,

J.D. Gabor

INDIAN EXPRESS Bangalore Wednesday December 12 1990

World Wide Fund For Nature: Lecture on "The nature Policy Plan of Holland", by Drs. Jaap Pieters, Deputy Director General, Dept. of Nature and Conservation, Holland. Raman Research Institute, Mekhri Circle, 6.30 p.m

Nature Policy Plan of the Netherlands

Ministry of Agriculture, Nature Management and Fisheries
The Hague, 1990

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restore nature

nature policy plan

The logo chosen for the Nature Policy Plan symbolizes terrestrial (a mammal) and aquatic (a fish) nature, the water being the bearer of life.

The design was inspired by prehistoric cave paintings, and thus represents a bond with the past. At the same time it carries a warning: if we are not careful, we will be left with nothing but an ancient relic.

1. Introduction

1.1 The necessity of a policy plan for nature conservation

The Netherlands is situated at the estuaries of the large rivers Rhine, Meuse and Scheldt. The Delta region is a dominant feature. Large parts of the country are flat and wet, and the Netherlands has a large number of wetlands of international importance.

However, the pristine swamps and forests have vanished, and the large wild mammals were killed off centuries ago. By draining swamps and clearing forest the Dutch created an agricultural landscape which provided habitats for other wild plants and animals and hence enriched diversity of species to some extent. The orderly Dutch landscape of today is the result of hundreds of years of human interference in the natural environment.

In modern times nature and the countryside in the Netherlands have suffered remarkably as a result of population growth and technological and economic development. Modern farming methods and increased environmental pollution have tipped the balance and the agricultural landscape is being impoverished rather than enriched.

Outdoor recreation has florished in the last forty years and therefore its setting (i.e. the countryside and its phenomena of ecological and scenic value) has acquired an economic relevance. Nature and landscape are important for tourism too. In addition, public awareness is growing that nature has an intrinsic as well as an economic value. Concern for the fate of endangered species is being emphasized, especially in the media. Opposition to the destruction of landscapes and the natural environment is becoming stronger, especially where people perceive that their immediate environment is threatened.

Clean water, clean air and clean soil, however essential, are not in themselves sufficient to make the environment livable. Natural ecosystems, wild animals and plants, and a scenic landscape are also required. One of the tasks facing the present generation in the densely populated Netherlands is to maintain (and, where possible, to develop) these assets for future generations.

Acknowledging the many functions that the countryside must fulfil, within this Nature Policy Plan the Dutch government attempts to offer a lasting solution to the problems currently manifesting themselves in relation to nature and the countryside.

Two aspects are of prime importance. Firstly, the international dimension of nature policy is becoming more prominent, because the interrelations between ecosystems within Europe and worldwide are better understood. Man's intervention in ecosystems has repercussions that may be felt much further afield as well as locally, and therefore an international approach involving initiatives from many governments is necessary. Secondly, our understanding of the processes involved has changed. For example, the effects of hydrological processes on the natural environment have only recently become clear, as have the specific effects of fragmenting or shrinking habitats on the survival of animal and plant populations. Because of newly acquired insights into the (im)possibilities of developing phenomena of ecological value (literally "nature values" in Dutch, meaning characteristics of the natural environment that are considered to be desirable from an ecological point of view) it has become necessary to make choices about the types of nature and landscape we wish to have. In some cases conserving existing phenomena of ecological value will be the best contribution to the policy for the natural environment, but in others "nature development", being management aimed at allowing an area to develop a certain biota, will be more appropriate.

The Dutch government's long-term policy for the geographical aspects of nature and landscape was presented in the Structure Plan for Nature Conservation and the Protection of the Countryside (Structuurschema Natuur- en Landschapsbehoud), which is based on observations made in the late 1970s. The present Nature Policy Plan has a much broader basis and deals with aspects such as the policy on species, the policy for increasing public involvement in environmental problems and the relationship between nature conservation policy and other policy areas (such as environment and water).

1.2 Relationship to other plans

The Nature Policy Plan, the National Environmental Policy Plan, and the Third National Policy Document on Water Management together cover Dutch policy on the environment. These three related plans are essential for the success of the nature conservation policy.

Each of these documents has its own character and special features. The Nature Policy Plan is largely area-oriented, focusing on the conservation of certain areas and species, whereas the National Environmental Policy Plan is more general and deals with the reduction and prevention of pollution. The National Environmental Policy Plan specifies targets for environmental quality, so that the ecological functions assigned to ecosystems can be met.

The Third National Policy Document on Water Management lays down rules for the management of water systems (this includes reducing pollution) that allow them to fulfil their ecological functions.

Finally, the Nature Policy Plan contributes to the implementation of town and country planning policy (which is called "physical planning" in the Netherlands) laid down in the Fourth Policy Document on Physical Planning.

1.3 The approach followed in the Nature Policy Plan of the Netherlands

The Nature Policy Plan of the Netherlands is a strategic plan. It contains the objectives and strategies of the government's policy for the landscape and the natural environment and their interrelationships. The Plan indicates which measures in nature conservation and in other policy areas and sectors are called for. This ensures that the the government's nature conservation policy will be taken into account in other government plans.

The Plan indicates how policies should be interrelated. In addition, it is intended to be a clear frame of reference.

The Plan will play an important role in the preparation, assessment and implementation of government policies. The Dutch government acknowledges that the objectives outlined in the Plan cannot be reached without the co-operation of provincial and local government authorities and will enlist their help in achieving the objectives.

The Nature Policy Plan also specifically calls on the general public, industry and other groups in the Netherlands to help improve the quality of nature and landscape and to refrain from activities that threaten these.

The Dutch government intends to provide a legal basis for the Nature Policy Plan in the Nature Conservation Act. This Act will contain regulations to co-ordinate nature conservation policy and other policies, including environmental protection policies.

2. Survey of nature and landscape in the Netherlands

2.1 Introduction

As indicated in the previous chapter, man has had a strong influence on nature and landscape in the densely populated country of the Netherlands. Some areas excepted, such as the coastal dunes and the tidal areas, this is still the case. As a result, the original landscape has almost completely disappeared, and with it much of the natural character of the Netherlands. Since the Middle Ages major efforts have been made in the wet part of the Netherlands to combat the sea and control it. Despite the infavourable abiotic conditions the western part of the country became most densely crowded, because it was situated on the sea-side and the delta of the large rivers Rhine and Meuse. On the higher (sandy) grounds the land was initially turned to heathlands and forests, and subsequently to agricultural land, infrastructure and residential areas.

Although the original nature and landscape have disappeared, traditional agricultural land use has also enriched the Netherlands with (other) ecological and landscape values.

In anticipation of the priority to be given to nature and landscape policy by the Dutch government (see chapter 4), the significance of nature and landscape of the Netherlands is outlined here. A comprehensive description is not presented in this Nature Policy Plan. Also, a survey of the international importance of nature and landscape in the Netherlands is given. The main criterion in this respect is whether the Netherlands is rich or poor in certain types of landscapes and ecosystems in comparison with other countries, in relation to the surface area of the Netherlands, approximately 41 400 km^2 land and water, the North Sea continental shelf excluded (57 000 km^2), that is 0.3 % of the land surface of Europe.

2.2 Landscape

Human influence on the landscape has not been the same for each area of the Netherlands. Some parts have been settled for a long time, others have been reclaimed more recently. Differences in elevation, soil condition, water regime and vegetation have resulted in a wide variety in lay-out and scenic aspects. Agriculture has been a determinative factor, with the exception of the large water areas. In recent decades the influence of urbanization on the landscape has increased.

Peatland reclamations in the province of North-Holland

In spite of the variety, which is often local, a limited number of landscape types can be distinguished. Roughly, these types are:

- the hilly country of southern Limburg;
- the landscape of the higher (sandy) grounds in the south and east of the Netherlands;
- the fluvial landscape of Rhine and Meuse;
- the dunes on the North Sea coast;
- the peatland reclamations in the west and north of the country;
- the older and younger polders, also in the west and north of the country;
- the recently reclaimed lakes around Lake IJssel, which used to be part of the Zuiderzee.

On the basis of an extensive report on the Dutch landscape written by order of the Dutch Ministry of Agriculture, Nature Management and Fisheries, particularly the fluvial landscape, the southern Limburg landscape and the dunes are considered to be of major national importance.

From a West European point of view the man-made landscape types in particular are important: (parts of) the fluvial landscape, the older polders, the recently reclaimed lakes and the more recent peatland reclamations in the northeastern part of the Netherlands. The dunes are both form the national and the international point of view of great importance.

2.3 Nature

In this Nature Policy Plan the ecosystems of the Netherlands will not be surveyed comprehensively as well, as is the case with the Dutch landscapes. Dutch nature is characterized by a wide variety of ecosystems, which can be distinguished into terrestrial and aquatic ecosystems.

Terrestrial ecosystems are:
- the marshlands, including virgin marshes, marshes with peat deposits and higher-lying peatlands;
- the coastal dunes;
- the grasslands, that is, natural grasslands, grasslands of the fluvial area, grassland in the peatland area and grasslands on sandy soil;
- heathlands and shifting sands;
- forests, both coniferous and deciduous forests.

Furthermore, the "wet" country of the Netherlands consists of several aquatic ecosystems:
- on sandy soils: peaty pools, brooks and dune lakes;
- the freshwater bodies, that is, the large rivers, parts of old river courses and ditches;
- man-made waters, such as canals and channels;
- stagnant highly brackish and salt waters;
- tidal waters;
- the North Sea.

Based on the above-mentioned criterion it may be concluded that the Dutch marshlands, tidal waters, dunes and shifting sands are of extraordinary international importance. Of great international importance are the Dutch heathlands and freshwater bodies.

The Dutch nature is therefore mainly of international importance because of its delta character and the presence of a large number of valuable wetlands.

The above-mentioned ecosystems are characterized by a specific flora and fauna. Without ignoring the individual significance of certain species of animals or plants, the Netherlands is of major international importance to wetland waterfowl and meadow birds (see table 1).

Internationally important marshlands are, for example, situated in north-western part of Overijssel: the "Weerribben", a wetland listed under the Wetlands Convention and EC protection zone under the Bird Directive

Table 1: International significance of some bird populations in the Netherlands

		number of pairs in the Netherlands	per cent of breeding population of West and Central Europe
waders	black-tailed godwit	85,000	64
	oyster-catcher	90,000	49
	avocet	8,000	41
	lapwing	237,000	27
water-fowl	spoonbill	350	58
	cormorant	10,000	50
	shoveler	10,000	40
	grey heron	9,000	30
marshland birds	hen harrier	100	77
	bluethroat	900	55
shore birds	sandwich tern	10,000	25
	common tern	12,500	20

The Netherlands are of great international importance for inter alia the West European populations of spoonbill, lapwing and black-tailed godwit

3. The problems facing nature and landscape in the Netherlands

3.1 The present state of nature and landscape

The decline of plant and animal species

The number of plants and animals in the Netherlands are dwindling. This trend is not just apparent for rare species. The process has accelerated in recent years, leading to concern about the resultant loss of diversity.

More species of plants and animals are becoming rarer. They outnumber those that are becoming more common. The species that depend on nutrient-poor soils and wet conditions are becoming rarer, whereas those that thrive in well-drained and fertile conditions are growing in numbers.

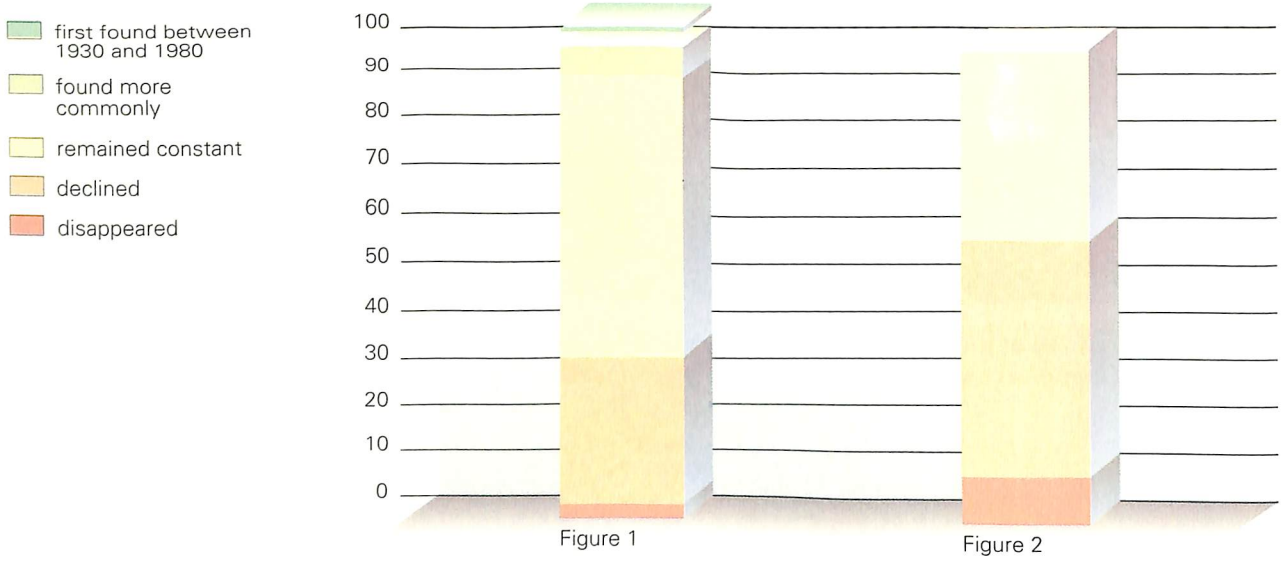


Figure 1: Increase and decrease of flowering plants in the Netherlands

Figure 2: Decline of butterflies in the Netherlands

Abundance of species in the Netherlands

Fungi

In the Netherlands 3,200 species of fungi have been found; 944 indigenous species are (severely) threatened by extinction, or probably have already disappeared.

Lichens and mosses

Of the 665 species of lichens, which have been found since the beginning of this century, only 85 % still exists in the Netherlands now (after 1970). Also 40 % of the moss-species have declined in number and lost vitality, especially those species with no resistance to acid conditions.

Flowering plants

Before 1930 1,436 species of flowering plants could be found in the Netherlands. By now, 71 species have died out and 497 species declined in number, as illustrated in figure 1.

Butterflies

More than 50 % of the butterfly species have become less in number, whereas 7 species died out this century and 8 species have no fixed populations in the Netherlands anymore (figure 2).

Fishes

In the Netherlands about 175 species of fish are known. Since the beginning of the century, tens of species declined in number. About 50 species live in fresh water, 16 being very rare nowadays.

Amphibians and reptiles

All 7 reptile species are dwindling; 9 of the 14 amphibian species are in decline.

Birds

Of the about 180 breeding-birds in the Netherlands, one-third has declined in number since 1950. Two species became extinct here. Particularly birds of heath, arable land and shrubs are declining.

Mammals

At this moment the Netherlands are populated by 65 species of mammals. The population of 21 species is stable. About a quarter of the species is declining in number. Other species are increasing in number. Recently two species of bats died out, while most probably the otter has to be considered as extinct in the Netherlands too.

The decline in the diversity of the natural environment is not confined to the Netherlands: it is also occurring at European and global scale. There is a clear interdependency of the various levels. The effects of changes elsewhere in the world are felt in the Netherlands, as shown in figure 3. On the other hand, the import of certain materials by the Netherlands (such as tropical hardwood, minerals, and endangered species) is contributing to the disappearance of biotopes and species in other parts of the world.

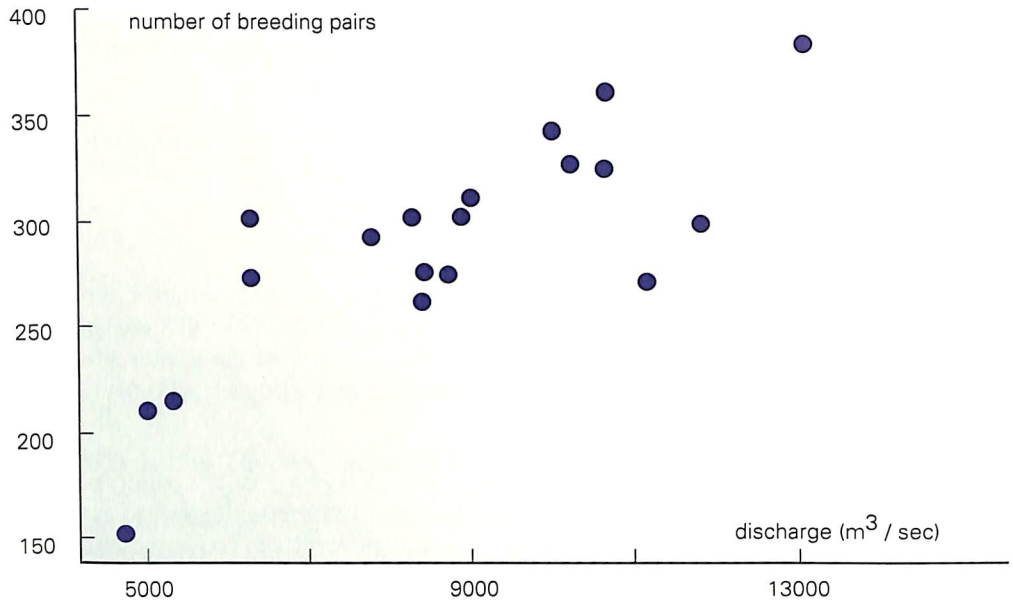
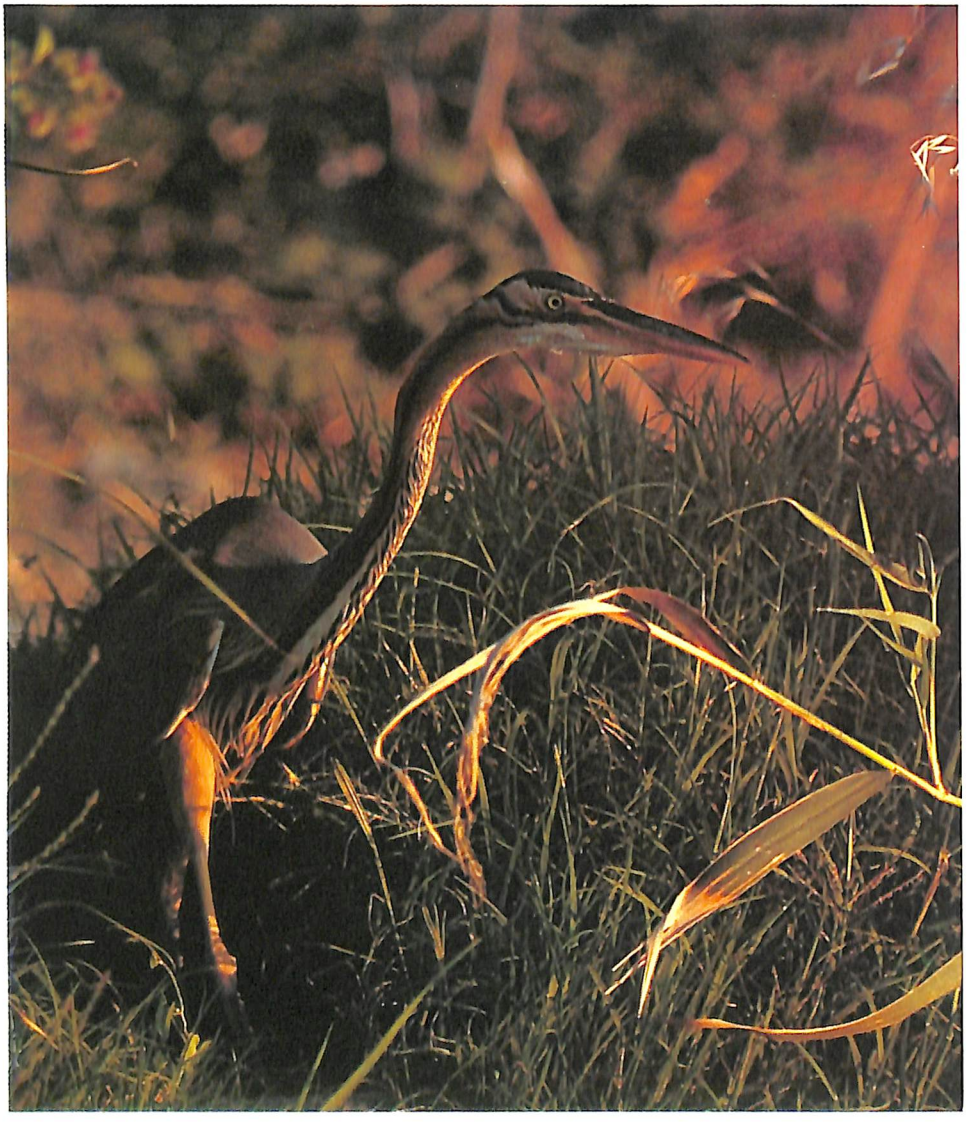


Figure 3: Relation between the total discharge of the Niger and the number of breeding-pairs of the purple heron in the Nieuwkoop-wetland in the Netherlands the next year



The decrease sketched above has a number of causes, most of which have been known for some time. However, their nature and importance appear to be variable. Various factors are relevant here:

- the area available as habitats for wild animal and plant species is declining, in spite of the efforts being made to prevent this. The area available to be designated as having high ecological value is shrinking and other natural elements are declining; furthermore, newly created barriers are also reducing the size of habitats, thereby threatening the survival of populations;
- the diversity of nature is being influenced negatively in a number of ways. Of particular concern is the increased influence of polluted soil, water and air. This is not just a matter of the local disturbance of species and habitats. In many places the competitiveness of species is being dramatically affected.

The regularization of the landscape

In the Netherlands the interrelationship between the abiotic structure of the environment and manmade landscapes has been weakened. As a result, characteristic landscapes are disappearing. The links connecting the Dutch with their past have often been severed. Certain landscape structures and patterns whose typical character evolved centuries ago are changing beyond recognition. The tendency is towards a regularization of landscape patterns and of appearance. As a result, characteristic landscape elements, such as hedges and hedgerows, disappear as well.

3.2 Causes of the decline

The causes of the degradation of nature and landscape can be broken down into the topics: acidification, eutrophication, contamination and disturbance. Additional factors are: falling water tables, the desalination of former brackish areas, the fragmentation and loss of habitats, and neglect. Although these themes can be looked upon as isolated processes that influence nature and the landscape, in practice several processes tend to operate simultaneously, thereby intensifying the problems in areas of high ecological and scenic value.

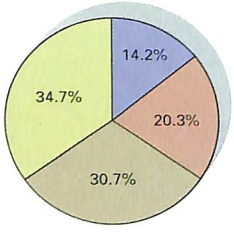
Acidification

Acidification is the process whereby acid-forming substances derived from industry, traffic and agriculture affect ecosystems. The substances involved include oxides of nitrogen and sulphur, and ammonia. Ozone, too, has a comparable effect on ecosystems. Some of the acid deposited in the Netherlands originate from industrial areas in neighbouring countries. In some cases acidification directly influences plants and animals. In other cases the influence is indirect, through changes in soil and groundwater.

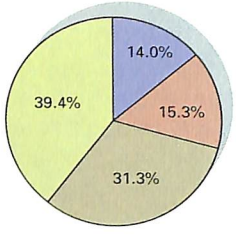
As a result of the large amounts of acid and acidifying substances deposited in the Netherlands, acidifying effects occur on a large scale. Critical levels for ecosystems are exceeded almost everywhere.

All ecosystems in which the buffering ability of the soil is weak are susceptible to acidification. Ecosystems on relatively higher sandy grounds (e.g. heaths, forests), in fenlands (including quaking bogs) and dunes are especially vulnerable. Acidification combines with the specific effects of ammonia to cause the disappearance of many plant and animal species, so that in ecosystems vulnerable to acidification the variety diminishes dramatically. The effects are clearly visible; for example, dying trees and excessive growth of grass in heathlands (figure 4).

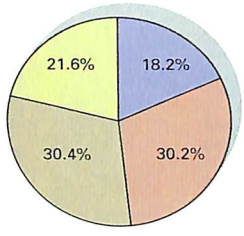
Figure 4: Excessive growth of grass in some heathlands in Drenthe, due to fertilizing effects of atmospherically deposited nitrogen compounds



Dwingeloosche Heide



Wapser en Doldersumsche Veld



Mantinger Zand

Uffelterveen

Noordsche Veld

Unless the acidification is reduced to levels below those critical for ecosystems with limited buffering capability, these ecosystems may be lost completely.

Eutrophication

Since the beginning of this century environments characterized by a limited availability of nutrients have disappeared on a large scale in the Netherlands, as a result of activities such as reclamation for agriculture and fertilization. The plant species and associations confined to poor soils have become much less numerous in farming areas, and are now found only in areas of high ecological value, on the edges of parcels of land, and in long-established hedgerows (called linear landscape elements in the Netherlands).

Nowadays, nutrients are translocated not only through fertilizers being applied directly to the soil, but also via the atmosphere (emissions of ammonia, oxides of nitrogen) and via surface water and groundwater (nitrate and phosphate). The main source of ammonia is intensive livestock farming. Oxides of nitrogen are released into the atmosphere mainly by industry and road vehicles. The discharge of treated or untreated household sewage (and waste from pleasure craft) into surface waters has boosted pollution by phosphates. Also the washing away of agricultural plots contributes to the pollution. In short, nutrient loads have increased dramatically: for example, today in most parts of the Netherlands the equivalent of at least 40 kilograms of pure nitrogen is being deposited per hectare per annum from the atmosphere. This is four times the rate at the beginning of this century.

Nitrate levels are high in shallow groundwater in the Netherlands. In some sandy soils the level of phosphate saturation has been reached. Many of the areas of high ecological value in the Netherlands are sensitive to eutrophication. Eutrophication leads to far-reaching changes in how well certain species can compete with other species. Generally it benefits a small number of ubiquitous species, at the expense of large numbers of more demanding ones.

Contamination

All forms of life are sensitive to contamination, for example in the form of heavy metals, organic microcontaminants (such as PCBs and polynuclear aromatic hydrocarbons or PAHs), pesticides and radioactivity. The sensitivity of individual species to these substances is variable, and often depends on the organism's stage of life and the substance involved. Species at the end of the food chain risk accumulating large doses through their diet.

Symptoms induced by environmental contamination have been observed in the Netherlands in various species, including birds of prey, fish-eating birds, fish, bats, seals (figure 5) and otters, and lower organisms such as earthworms, mosquito larvae, and certain marine gastropods. Elevated levels of toxic or radioactive substances are also encountered occasionally in animals, with no apparent negative effects, although one cannot rule out negative effects appearing in these animals at a later date.

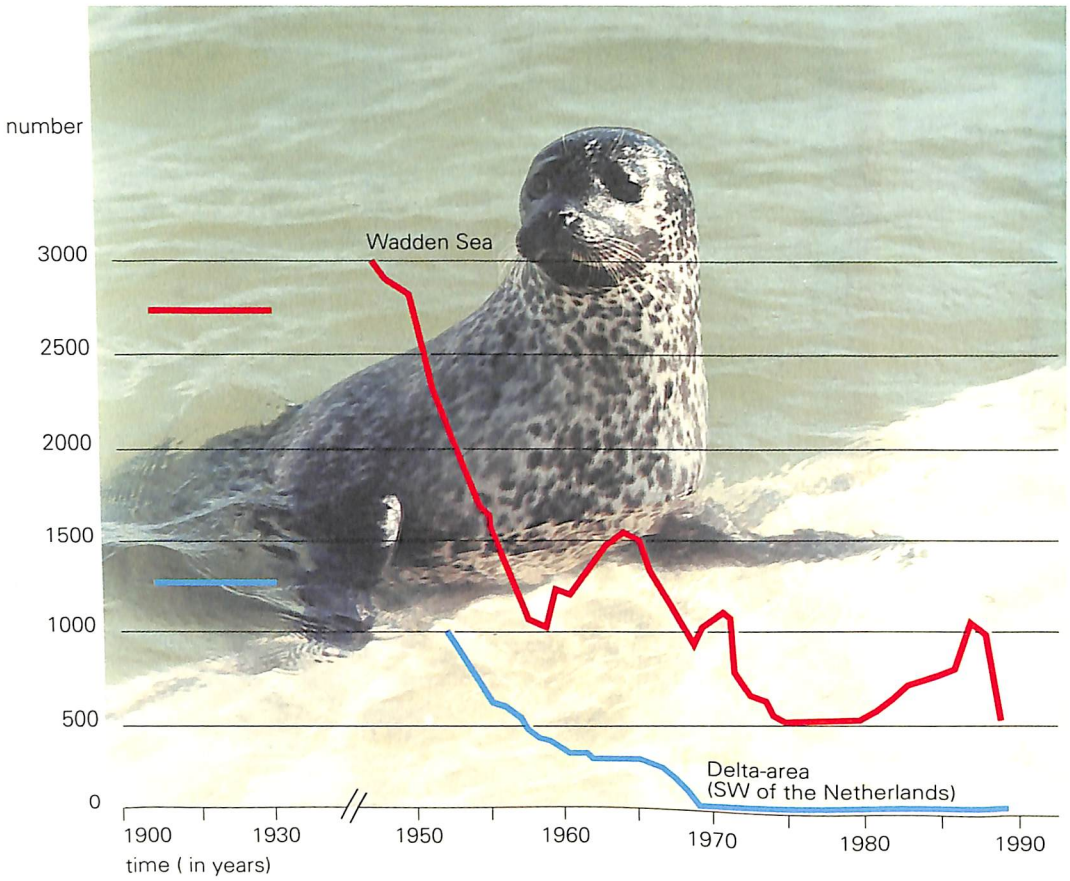


Figure 5: Course of the number of seals induced by contamination of the fluvial system (rivers Rhine, Meuse, Scheldt)

Due to atmospheric deposition concentrations of heavy metals, exceeding critical values have been found in areas of high ecological value. Even if a ban is imposed on a given substance, to prevent it spreading further into the environment, the concentrations of that substance may continue to rise for some time, because a time lag may be involved.

Falling water tables

In many places in the Netherlands the water table has fallen alarmingly, as a result of groundwater being extracted for use in industry and for drinking water supplies, and because of improved drainage and greater use of water for irrigation in agriculture. Recent research has shown that in many places the relatively high-lying sandy soils in the Netherlands have become seriously dried out. Particularly in the coastal dunes, desiccation is a serious problem (illustrated in figure 6), mainly because of drinking water exploitation.

Approximately thirty percent of all plant species found in the Netherlands require a high water table. Changes in the level and quality of the groundwater can have dramatic effects on this group of plants. Negative effects have also been observed for meadow birds.

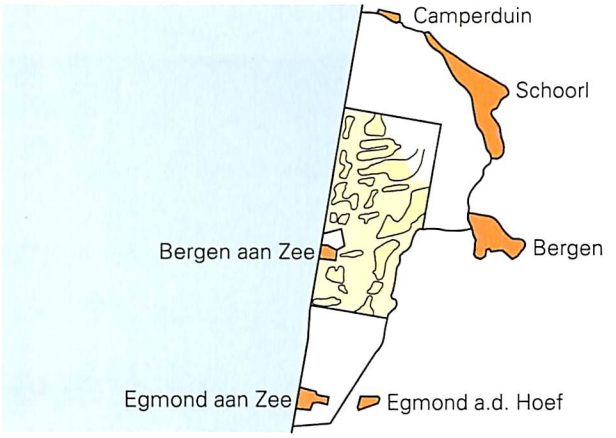
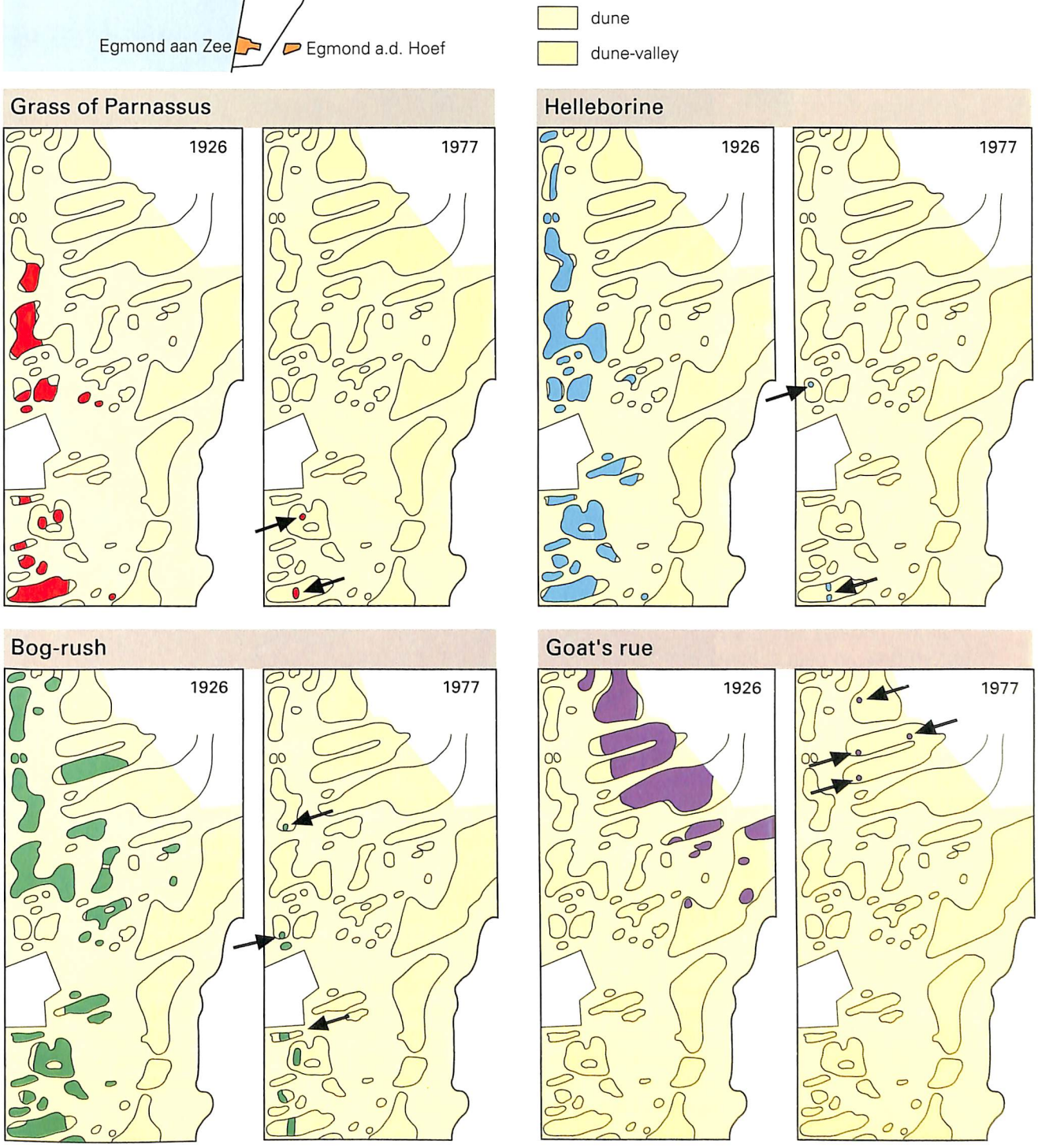


Figure 6: Decline of the populations of some hydrophilic species of plants in the dunes near Bergen aan Zee (N. Holland)



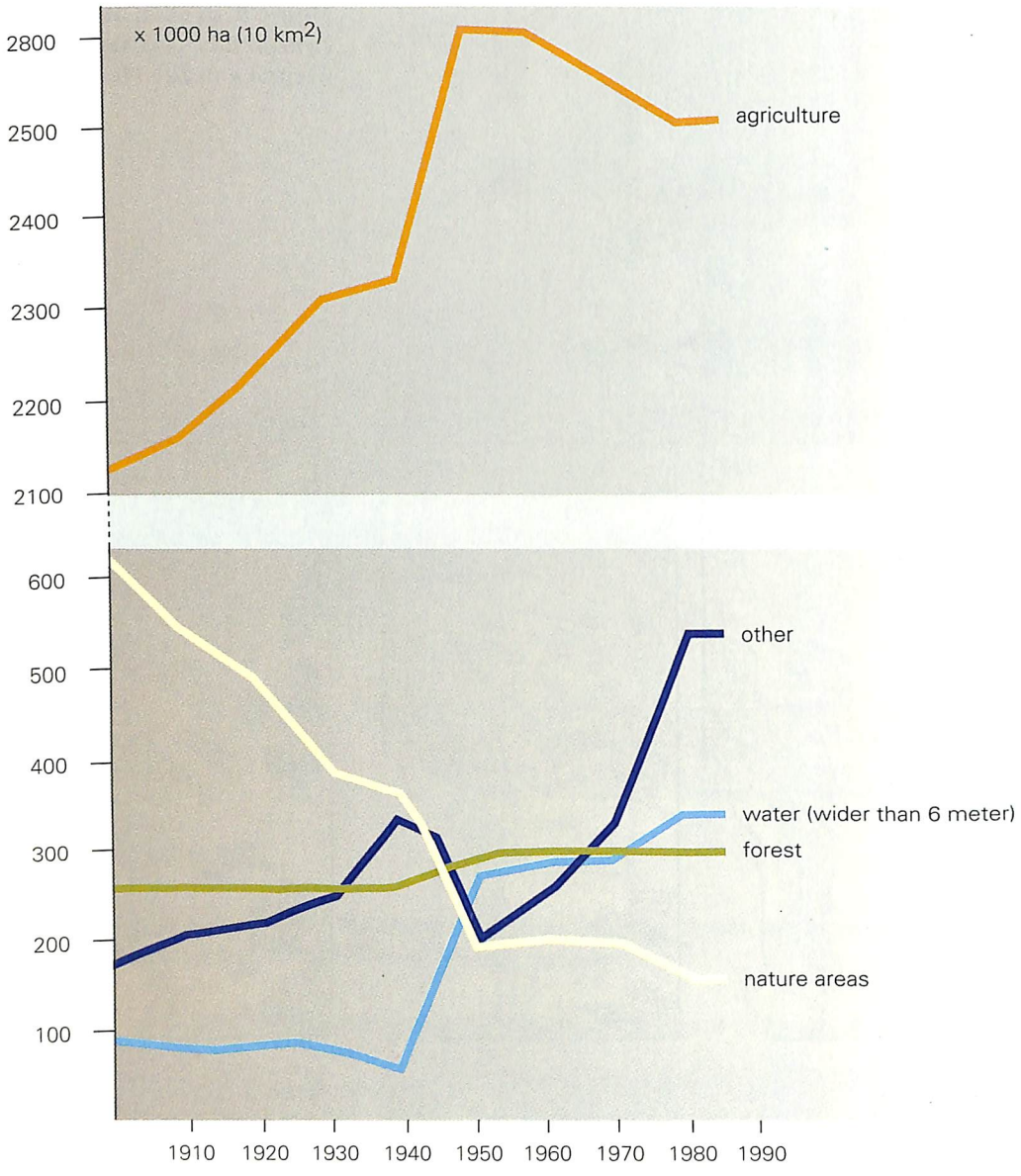


Figure 7: Use of soil in the Netherlands from 1900 to 1984

Desalinization

Many important bodies of water that were formerly directly connected to the sea and were therefore saline have been cut off from marine influence as a result of Dutch engineering work, particularly in this century. For example, the former Zuiderzee which was closed off by a dike in 1932 and is now a lake, called the IJsselmeer. Another example are the recently completed Delta works in the southwest of the Netherlands. The resulting desalinization has reduced the seepage of saline water in bordering areas, posing a threat to the halophyte vegetation associations of the marine clay and fenland areas, which depend on upwelling saline or brackish water. This development is amplified by the practice of flushing certain areas with freshwater to remove the salts that accumulate as a result of present farming methods.

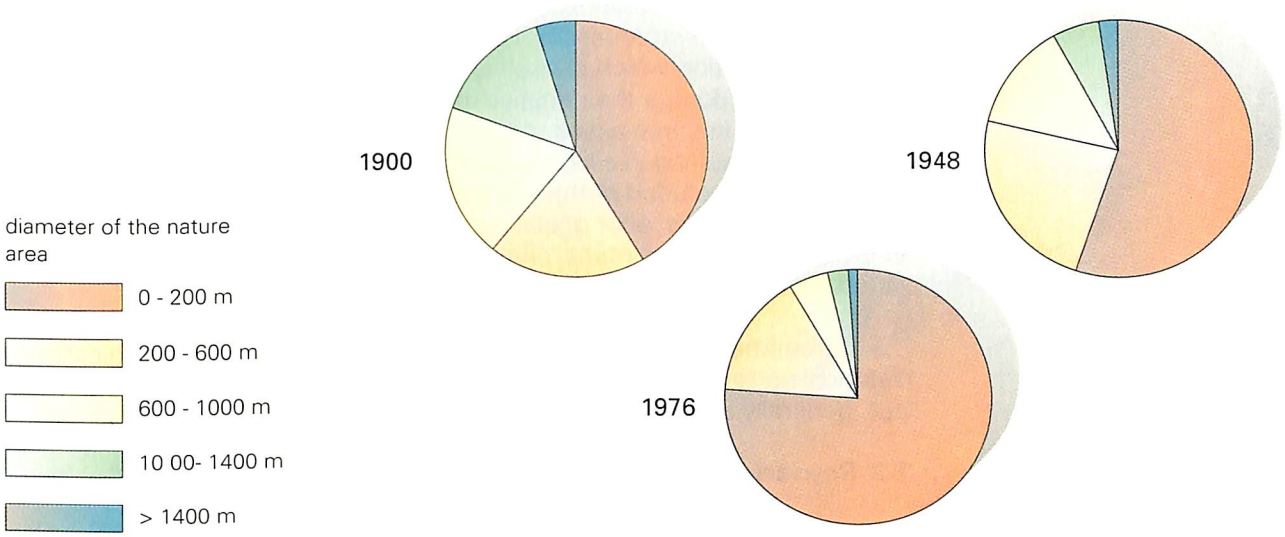


Figure 8: The fragmentation of nature areas on the higher (sandy) grounds of the Netherlands

Disturbance

Plant and animal populations are adversely affected when there is considerable human activity nearby. Disturbance is almost unavoidable in a country as densely poplated as the Netherlands, but its countrywide significance is not known. However, it is possible to give an indication of the effects of disturbance on certain species. Most of the available data pertain to birds (including black-tailed godwits, curlews, various water fowl) and larger mammals (including deer, seals, otters). A form of disruption directly related to agricultural production is the disturbance of nesting meadow birds by mowing and grazing pastures in spring. Daytime recreation on and near waterways, and noisy sports (e.g. motocross) also cause disturbance locally. The continued growth in outdoor recreation makes it likely that such problems will increase. Disturbance is also caused by traffic and by military activities.

Fragmentation and loss of habitats

The dwindling area of nature reserves, woods and smaller natural elements has led to a concomitant reduction in the habitats available for animals and plants (figure 7). For some species the minimum size requirements for habitats can no longer be met. The natural areas that remain have been badly fragmented, causing many habitats to become isolated. This affects the opportunities for animals and plants to colonize new areas, or to re-establish themselves in areas where they had died out. The numerous artificial barriers formed by infrastructural facilities (e.g. motorways) make matters worse. Figure 8 illustrates the fragmentation of habitats on the higher (sandy) grounds of the Netherlands.

Neglect

In a number of situations human interference in the Dutch landscape and the natural environment is necessary; for example, to perpetuate an ecological situation which in itself is not stable enough to last, or to prevent or discourage the negative influence of certain human activities.

However, in some cases management of nature areas has been insufficient, resulting in a less valuable (according to the objectives of nature policy) evolution of the ecosystem. This may happen for example with heath and fens, poor grasslands, dune-areas and forests. Generally, an increase of management measures is sufficient to get the desired situation back.

Sometimes also gardens, parks, historical builings, archeological sites, historical patterns in the field (e.g. hedgerows), etc., are in a state of neglect, generally as the result of insufficient maintenance or management.

3.3 Remarks on the former Dutch nature conservation policy

Since the 1970s there has been increasing public demand in the Netherlands for a halt to the degradation of nature and the landscape. Nongovernmental and governmental organizations active in nature conservation and environmental protection have responded to this demand, and this has had benificial effects.

A creditable number of areas of high ecological value has been saved by land purchases or by enforcement of the Nature Conservation Act. Furthermore, about 184,000 hectares (1 hectare = 2.47 acres = 10,000 m^2) of forest and nature reserves are owned and managed by the State, and about 123,000 hectares are owned and managed by private nature conservation organizations. Together, this accounts for approximately 55 % of all forests and areas of high ecological value in the Netherlands. In addition, the physical planning policy followed so far has enabled important open spaces and areas of high ecological value, such as the dunes, to be safeguarded from structurally intrusive activities.

The protection and management of nature and landscape has also been given a firmer foundation, by implementing the policy contained in the Policy Document on Agriculture and Nature Conservation and by the State and provinces giving financial support to organizations that manage certain sites. When planning infrastructural or landuse projects, opportunities for nature conservation and nature development now receive more attention than previously.

Specific policy measures have already produced heartening results. For example, geese populations are on the increase. Nevertheless, there are limitations to what can be done through the present policy efforts.

Nature policy has contributed to the increase of geese populations in the Netherlands

Information and behaviour

Although public awareness of nature and the environment is growing, behaviour that is nature- and environment-friendly is far from widespread. There are three main reasons for this:

- many people do not have the knowledge of how their behaviour is related to its effects on nature and the environment;
- it is sometimes difficult to reconcile nature conservation (a general interest of society) with the interest of the individual, or, indeed, with other interests in society. Too often short-term thinking prevales;
- there is insufficient knowledge on alternatives to current behaviour.

Long-term effects and uncertainties

The planning of policies on the landscape and the natural environment is beset by specific problems. The most important is the time factor involved in implementing policies on nature conservation and landscape and the related uncertainty about the effects of such policies. Many efforts only show results after a considerable period of time. Furthermore, our knowledge of ecology and environmental protection is still very incomplete, although recent advances in ecotoxicology, biogeography, landscape ecology, and ecohydrology, to name but a few, have improved our ability to forecast the effects of policies.

Reduced possibilities for combining nature conservation and farming

Modern farming is very intensive, and in large parts of the Netherlands there are few opportunities left for combining agricultural landuse with nature conservation. Nevertheless, sometimes high densities of meadow birds are found in fairly intensive farming areas. Also, in some area with physical constraints to farming (e.g. parts of the peatland pasture area) ecological values are very high.

The prospects for nature conservation and the landscape in the Netherlands will certainly be enhanced by the anticipated improvements in the quality of the environment and by the extensification of farming in some rural areas.

Insufficient attention for valuable ecosystems

The Dutch government's general environmental policy is essential to ensure the continuation of natural processes. However, some plant and animal species have specific requirements as regards the ecological quality of their habitats. Extra effort is needed to safeguard these specific ecological qualities, or to create them by implementing preventive or curative measures (in the Netherlands these are called source- and effect-oriented measures). The latter aspect will have to be given greater emphasis, to attain the objectives proposed in the nature conservation policy.

4. The objectives of the nature conservation policy

4.1 Introduction

The main objective of the Dutch government's policy on nature conservation may be stated as follows:

The sustainable conservation, rehabilitation and development of nature and landscape.

This applies primarily to the Netherlands (including the Dutch part of the continental shelf), but also has a more general application to international nature conservation policy.

The Nature Policy Plan provides a general framework whereby the Dutch government hopes to increase public awareness (at home and abroad) of responsible behaviour vis-à-vis nature and landscape. In the Netherlands, priority is given to developing elements with a special ecological or scenic value, while safeguarding phenomena of more general values. In the international context, the Dutch government especially wants to contribute to those ecologically important areas and migration routes outside the Netherlands that are essential to certain ecosystems in the Netherlands. In addition, the Dutch government wishes to contribute to collective international efforts to protect the biosphere.

Sustainability is one of the precepts underlying the policy. It is inspired in part by the principles of the report "Our Common Future" produced by the World Commission on Environment and Development, which was endorsed by the Dutch government.

4.2 National nature conservation policy

The conservation of nature and landscape has always been a mainstay of the Dutch government's national nature conservation policy. In many cases the areas of particular value are vulnerable, i.e. they are extremely susceptible to man's interference. This means that the nature conservation policy must be intensified. Funds are limited, therefore priorities must be clearly set.

When setting priorities as to which phenomena of ecological and scenic value most urgently require protection, rehabilitation and development a distinction can be made in four aspects:

- ecological value;
- geomorphological and geological structure;
- cultural heritage;
- scenic value.

Ecological value

The criteria used for assessing what has ecological value in the context of the Dutch government's nature conservation policy fall into three broad categories:

a. diversity

Diversity has always been one of the main criteria in the government policy. It is best quantified in terms of the number of different species, and/or in relation to rarity at regional, national or global scale.

b. naturalness

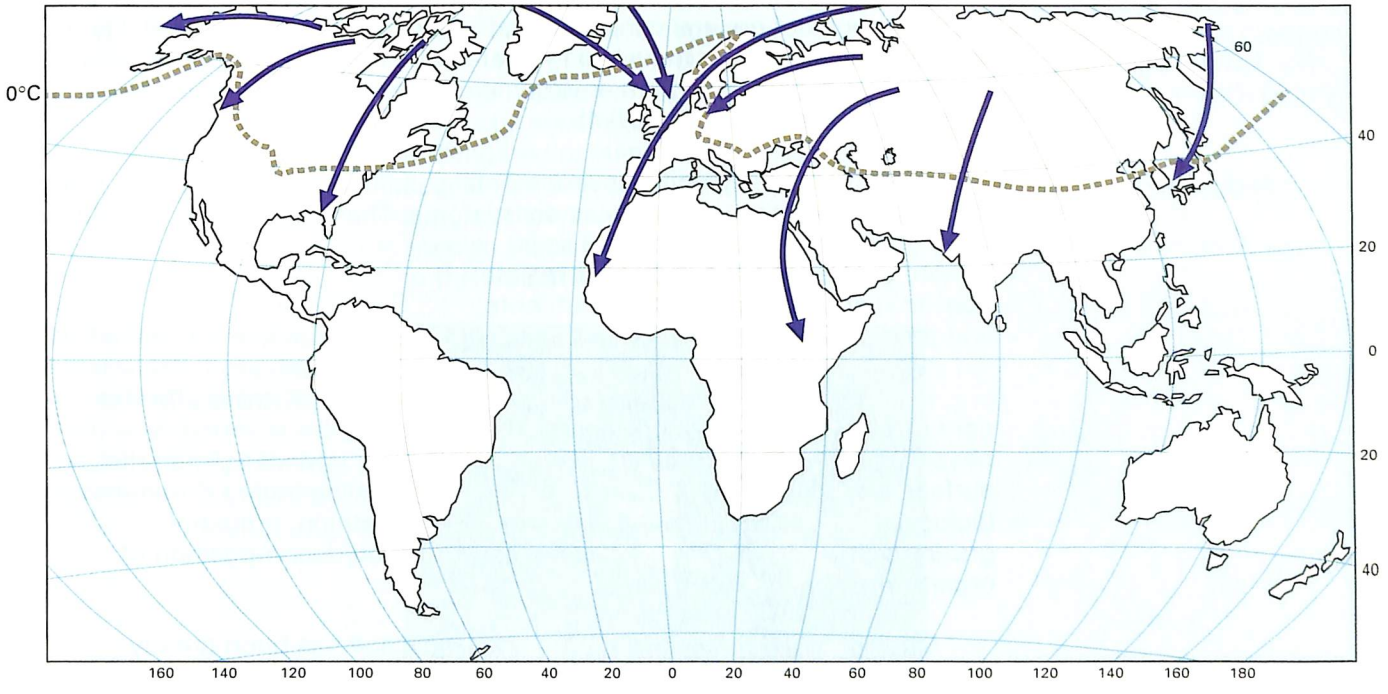
This criterion is an indicator of how "natural" an ecosystem is, specifically:

- how well it fits into the wider context (larger ecosystems);
- whether it is undisturbed and complete; the former relates primarily to characteristics of the processes in the ecosystem, the latter to the completeness of pattern characteristics.

c. characteristics

This criterion is related to how naturally a population or vegetation association fits into its surroundings. It applies mainly to species and ecosystems that are characteristic of the abiotic environment in the Netherlands. Certain so called "reference situations" may be helpful in assessing this criterion. The place of ecosystems in the national or international context is also relevant. For instance, the Netherlands has a special position as a breeding area for meadow birds and as a resting place for migratory birds (figure 9).

Figure 9: Flyways of migratory birds



Human interference has changed many natural ecosystems, and to such an extent that certain characteristic ecosystems disappeared from the Netherlands centuries ago (e.g. various forest ecosystems and systems typified by the presence of large mammals). However, human interference also created valuable new ecosystems, such as heaths, poor grasslands, and peatland pastures.

The Dutch government considers diversity, assessed on the basis of the national and international rarity of species and ecosystems, to be the most important criterion for making strategic policy decisions. Therefore it gives priority to the conservation of certain ecosystems that are characteristic in parts of the Netherlands:

1. in the rolling landscape of southern Limburg: brooks, poor grasslands, scrub, semi-natural woodland on chalk soil, and woodland around natural springs;
2. on the higher (sandy) grounds: active dunes, heaths and pools, carr peat, poor grasslands, brooks, bogs, and older forests;
3. along the rivers Rhine and Meuse: bypassed meanders, scour holes, marshes, poor grasslands, and woodlands;
4. in the low-lying peatland area: (poor) grasslands (including ditches), marshes and pools and canals;
5. in the marine clay area: wet grasslands (including ditches), marshes and woodlands;
6. in the inland dune area: young dunes and poor grasslands, scrub and forests;
7. cut-off arms of the sea and river mouths;
8. tidal areas (mudflats, estuaries);
9. North Sea.

However, this selection does not imply that no attention will be given to phenomena of general ecological and scenic value. The sustainability of the above listed ecosystems is only guaranteed if qualitatively good basic conditions are achieved, both environmentally and ecologically, in the Netherlands as a whole (see 5.4).

In many cases, specific environmental conditions are required for the sustainable maintenance of these ecosystems. These conditions include:

- undisturbed or seldom disturbed soils;
- a more or less undisturbed water regime;
- poor to moderate availability of nutrients;
- conditions that are slightly acid to basic.

In addition, certain natural processes are generally required for the continued existence of ecosystems. They include:

- physical processes such as erosion/sedimentation, upwelling/infiltration, surface water flow;
- biological and chemical processes, such as competition, predation, grazing, migration etc., as well as the accumulation/decomposition of organic material.

Given that the survival of nature and landscape has been greatly compromised by recent losses, fragmentation, and external influences, it is extremely important to seize any opportunities for developing new areas that have a comparable value. The Dutch government regards the aspect of nature development as a very important part of its nature policy.

Nature development in the Netherlands

Discussion about the possibilities for the active development of nature are going on in the Netherlands for some years now, both in the scientific field and in nature policy itself. A well known example of a "new" developed nature area are the Oostvaardersplassen, situated in the western part of the Flevoland-polder. After diking the land in 1968, this part of the polder was waiting for its final destination. Meanwhile an ecosystem of high ecological values started to develop, due to the still wet condition in this area. This was an important stimulus for the concept that, given adequate abiotic conditions which can be created by man, development of nature on a large scale is possible. By now the Oostvaardersplassen consist of an almost self-regulating ecosystem. The area is enlisted as Wetland of International Importance (Ramsar-Convention) and as European Community protection zone under the EC Birds Directive.

Nature development is therefore considered a successful instrument for nature policy. Therefore, in this Nature Policy Plan nature development is regarded a major part of nature policy, due to the success of the Oostvaardersplassen and of field experiments. Also a general study on the subject leading to the publication of the Ministry of Agriculture, Nature Management and Fisheries report "Nature development" in 1989, contributed to the concept of nature development. In the Nature Policy Plan the focus is no longer only on the conservation and management of nature, but also on the opportunities to develop new nature areas or new phenomena of high ecolgical values within existing nature areas.

Although the Dutch government's policy for the natural environment is primarily focused on ecosystems, a complimentary approach focusing on individual species is necessary. For the vast majority of species, protection in the form of legislation will suffice. But for certain plant and animal species supplementary measures are necessary. The government's policy will focus specifically on (see also 5.3):

- endangered or vulnerable species;
- species for which the Netherlands bears an international responsibility;
- species that have declined sharply because of loss of biotopes;
- species that are not numerous and which occur in biotopes characteristic to the Netherlands.

Butterflies -for example the swallowtail- have declined dramatically in the Netherlands and therefore will get special attention in the government's nature policy

Duck decoy

Geomorphological and geological structure

Important geomorphological and geological abiotic structures, elements and processes are those which are meaningful as entities in their own right. The government uses three criteria to evaluate them:

- rarity, either nationally or internationally;
- non-replaceability: for example, structures formed under the influence of the glacials, or irreplaceable structures formed prior to the embankment of rivers (notably the rivers of the Rhine-Meuse complex);
- topicality: geomorphological processes that are taking place at the present moment.

As a result, priority is given to the following structures and elements:

- landscape structures formed under the influence of tectonic movement (e.g. fault scarps);
- landscape structures formed during the glacials;
- landscape structures and elements formed under the direct or indirect influence of the sea;
- landscape structures and elements formed under the influence of the wind;
- landscape elements formed by the dissolution of bedrock;
- bogs and parts of the peatland areas.

Cultural heritage

This is assessed in terms of archaeology or historical geography. The Nature Policy Plan largely focuses on the historico-cultural structures, patterns and elements in rural areas that are the result of man's exploitation of the soil and other uses of the natural environment in the past.

The Dutch government uses two criteria to evaluate the cultural heritage of relevance to its nature conservation policy:

- rarity, both nationally and internationally and
- the extent to which various parts of the landscape possess or retain a substantial functional coherence.

Therefore priority is given to the protection of the following landscape types and elements:

- reclaimed river terraces;
- reclaimed river ridges and river basins;
- former reclamations of old dune areas;
- deep polders on excavated peatlands;
- reclaimed loess areas;
- old marine clay polders with flood-refuge mounds;
- relatively intact parts of reclaimed peatland;
- relatively intact parts of old settlements, including their field systems;
- old country estates and parks;
- areas with characteristic, old, man-made features, such as embankments around fields, livestock watering-places, or duck decoys.

Young dunes are given priority in Dutch nature policy

The Dutch government's policy aims at maintaining the character and significance of the patterns and structures typical of the areas involved.

Scenic value

Aesthetic value is related to the visual aspects of a landscape and the subjective appreciation of the phenomena of ecological value that landscape contains. It is this aspect more than any other that motivates and inspires people to take an active role in or support nature conservation. It is also one of the factors determining the tourism and recreational significance of a given area.

In the Netherlands the landscape is becoming increasingly uniform; the spatial contrasts are becoming less pronounced. This process has a negative influence on the scenic value of the Dutch landscape, and therefore the government gives priority to maintaining existing spatial extremes, notably:

- areas whose traditional small-scale spatial pattern is still intact;
- areas whose traditional (large-scale) open spatial pattern is still intact.

Exceptional significance of the dune-area

Based on the above mentioned priorities for national nature policy the young dunes are considered to have very high ecological, geomorphological and geological values. The Dutch dunes are part of a series of dune-areas from Calais (France) to Skagen (Denmark). The young dunes in the Netherlands cover a relatively large area (about 40,000 hectares) and are rather undisturbed. They are under strong influence of the wind, especially the dunes of the Waddensea-islands, resulting in dynamic situations (even resulting in "walking" islands: Rottum and Rottumeroog). Because of the differentiation in abiotic conditions there is a tremendous variation of plants. About two-third of the Dutch plant-species are to be found in the dunes; 10 % is strictly found here. Furthermore, part of the West-Palearctic flyway of migratory birds is situated over the dunes along the North Sea (figure 9). The young dune-area in the Netherlands is therefore also of major importance in the international context.

4.3 International nature conservation policy of the Dutch government

In this Nature Policy Plan the international aspects of the Dutch government's nature conservation policy are stressed, because processes that substantially influence the quality of our life on this planet are taking place at a global scale. In addition, there are direct relationships between the natural environment in the Netherlands and elsewhere; a fine example of this is the Dutch wetlands, which are visited by large number of migratory birds. Like the domestic nature conservation policy, Dutch international nature conservation policy reflects the government's desire to promote the maintenance of nature and landscape, and to stimulate a sustainable development of certain sectors in society, such as agriculture. It is very important that others also become aware that long-term development is impossible without the concomitant protection of essential ecological processes, conservation of genetic diversity and a judicious use of natural resources, species and systems. The Dutch government has the intention to help promote this awareness.

The people and commercial enterprises in the Netherlands, and the Dutch government bodies, must become more aware of the repercussions of their actions on the environment in other parts of the world. By taking appropriate measures, especially in relation to development assistance, the government will contribute to sustainable development without burdening the environment unacceptably.

The Dutch government's international nature conservation policy gives particular attention to ecosystems and species (see also chapter 7):
- that contribute significantly to the natural diversity on our planet;
- that are essential to the well being of the people and/or to the environmental conservation in general;
- whose survival is threatened;
- that are affected (positively or negatively) by activities in the Netherlands;
- that depend on, or are interrelated to nature in the Netherlands.

On the basis of these criteria the Dutch government gives priority to the following ecosystems in its international activities in the field of nature conservation:
- wetlands;
- tropical forests;
- seas and coastal areas;
- Antarctica.

In addition, priority is given to the protection of migratory birds and large mammals.

4.4 The goal of sustainability

The Dutch government's nature conservation policy can only be implemented successfully if the conservation, rehabilitation and development of nature and landscape takes place in a sustainable way.

One way of promoting the sustainability of nature and landscape is to ensure that public support for policy measures is maximal. Such support is essential not only to achieve general acceptance of the measures, but also to enable individuals and groups to contribute actively to improving the quality of nature and landscape. Knowledge of the value of nature and the landscape and the processes that take place in them can lead to a more effective strategy. Education on nature and environment, and a policy aimed at target groups are important ways of increasing public support for nature conservation.

The required sustainability of natural and landscape qualities is also furthered by effectively co-ordinating the policy domains of nature conservation and landscape, environmental protection, water, and landuse planning.

An integrated policy must ensure that the quality of the environment (water, soil and atmosphere) is generally good. Furthermore, the policy will strive to ensure that town and country planning takes account of the natural functions of an area. For a sustainable development of nature and landscape not only the natural processes but also the processes in society that are related to the functions of rural areas need to be considered.

In some nature reserves in the Netherlands large mammals are introduced in order to stimulate natural processes.

Sustainability is more likely to be achieved by focusing on the opportunities of an integrated development of nature, landscape and other social functions. In many cases interests overlap, and therefore reinforce each other. Not presupposing a conflict of interests makes it easier to guarantee the continued existence of nature and other elements of scenic value.

The specific ecological value and the stages of development that contribute most to sustaining diversity nationally and internationally must be known, if ecosystems are to be rehabilitated and developed successfully. It is important to know the cost benefits of different strategies.

In some cases it may be more profitable to opt for systems in which man plays only a modest role and natural processes (such as accumulation and decomposition, predation, grazing by large mammals) can form the main contribution. There are several good opportunities for reintroducing such systems in the Netherlands. In other cases, forms of management in which man plays a more prominent role may be feasible.

In some nature reserves in the Netherlands large mammals are introduced in order to stimulate natural processes.

Once it has been decided which type of ecosystem contributes most to (inter)national diversity, several choices remain as to how the selected ecosystem should be achieved. Cost benefit is important here too.

Time is an important factor when assessing the cost benefit. Great care is required when managing ecosystems that take a long time to develop. Pioneer associations (on active dunes, open water, etc.) typically take some years to develop. It takes several decades for poor grasslands, heaths, reedy marshes and spinneys to develop, and some types of forest, and peat-moor and fenland require hundreds or thousands of years to develop.

The likelihood of specific schemes going ahead

Not everything can be maintained, restored or developed everywhere. There are restrictions, especially from the abiotic environment. Much depends on the location of the ecosystems. The interrelationships between the various ecosystems and the surrounding areas, and the extent to which those interrelations have been disrupted is decisive. It will be easier to maintain, rehabilitate or develop ecosystems in areas whose relations with surrounding areas are little disturbed, or that suffer less environmental pollution. Pinpointing such promising areas is especially important with a view to nature development.

The national ecological network

The current spatial structure of nature areas in the Netherlands is too fragmented for a sustainable maintenance of its characteristic ecosystems and their plants and animals. It is therefore important to stimulate nature to become self-sustaining and self-developing, and to develop or rehabilitate links between areas of high ecological value.

One of the concepts crucial to Dutch policy on nature development is that of the national ecological network. This network is envisaged as comprising a number of interdependent systems of areas of high ecological value, linked by ecological corridors. In cases where the nature areas in such systems are too small, or are absent, systems may be upgraded by nature development. Nature development may also serve to create or improve ecological corridors. The future of the ecosystems that have priority for the Netherlands can be guaranteed more easily if they are part of an ecological network. Firstly, because the external influences can be minimized by choosing the right location and appropriate compact size. Secondly, because linking subpopulations of plants and animals is beneficial to the populations, reducing the risk of extinction of the species.

5. The main thrusts of the nature conservation policy

The policy that the Dutch government has pursued to date has not succeeded in solving all the ecological problems outlined in chapter 3. Clearly, a more concentrated and co-ordinated application of policy instruments is necessary: priorities must be set and certain choices must be made. The main thrusts of the nature conservation policy will be outlined below: where, how and what must be conserved, rehabilitated and developed and within what period of time this should be accomplished.

5.1 The national ecological network

The policy's most important task is to bolster ecological sustainability. At present, sustainability is limited, largely because areas of high ecological value are scattered and small and are very sensitive to external influences. Efforts made within the framework of the policy should therefore aim to reduce or eliminate weak points in the most effective way. This could be accomplished by enlarging a given nature area, by ensuring that such areas are not isolated, and by intensifying measures to safeguard such areas from negative external influences. The latter can be achieved by ensuring that such areas are favourably located, by taking specific measures, and by generally alleviating local environmental stress by a stricter policy on environment and water.

The Dutch government therefore has opted for the realization of a spatially stable, sustainable national ecological network, using the policy priorities described in the previous chapter. Furthermore, the location and extent of the specific regions of high ecological value and the requirements for the survival of certain animal species have been taken into account.

The resulting national ecological network consists of core areas, nature development areas and ecological corridors, as indicated on the map at the end of this document. The sustainability is supported by a buffer policy directed at eliminating or minimizing external influences on the national ecological network.

The ecological network does not stop at the frontiers of the Netherlands. Therefore, the map also shows the relationships requiring further intensification of the core areas in the Netherlands with existing concentrations of phenomena of ecological value across the borders with Belgium and West Germany. The mutual ecological interdependence between the Netherlands and its neighbours, and the desirability of ensuring that the exchange of species is maintained mean that the efforts of these three countries in the field of nature conservation must be co-ordinated. In addition, there must be closer collaboration and consultation on management of the rivers and streams that cross international frontiers and are

part of the national ecological network. Policies could also be adjusted at European Community level, where the Natura 2000 Project to create an interrelated network of the most significant habitats is currently in progress.

Nature Policy Plan project 26: Transboundary nature areas

To intensify the relations between the Dutch ecological network and nature areas across the borders with Belgium and Germany, and so to increase sustainability, a project has been started. Examples of such areas are Meijnweg in southern Limburg at the German border and Kalmthoutse Heide on the Dutch-Belgium border (east of the Scheldt river).

5.1.1 Core areas

Areas whose existing ecological value is of national or international significance have been incorporated into the ecological network as core areas, providing they cover at least 500 hectares. However, nature areas, estates, forests, or a combination of these, need only to consist of 250 hectares to be incorporated into the ecological network. Areas with coniferous forests need to be at least 1,000 hectares to be incorporated. Stream valleys, dunes, large lakes and (the Dutch territorial waters of) the North Sea have also been designated as core areas within the ecological network. For the latter, the concept of the national ecological network is not fully compatible because of the unifying aspect of the water. The large lakes and the North Sea are, however, indicated as core areas.

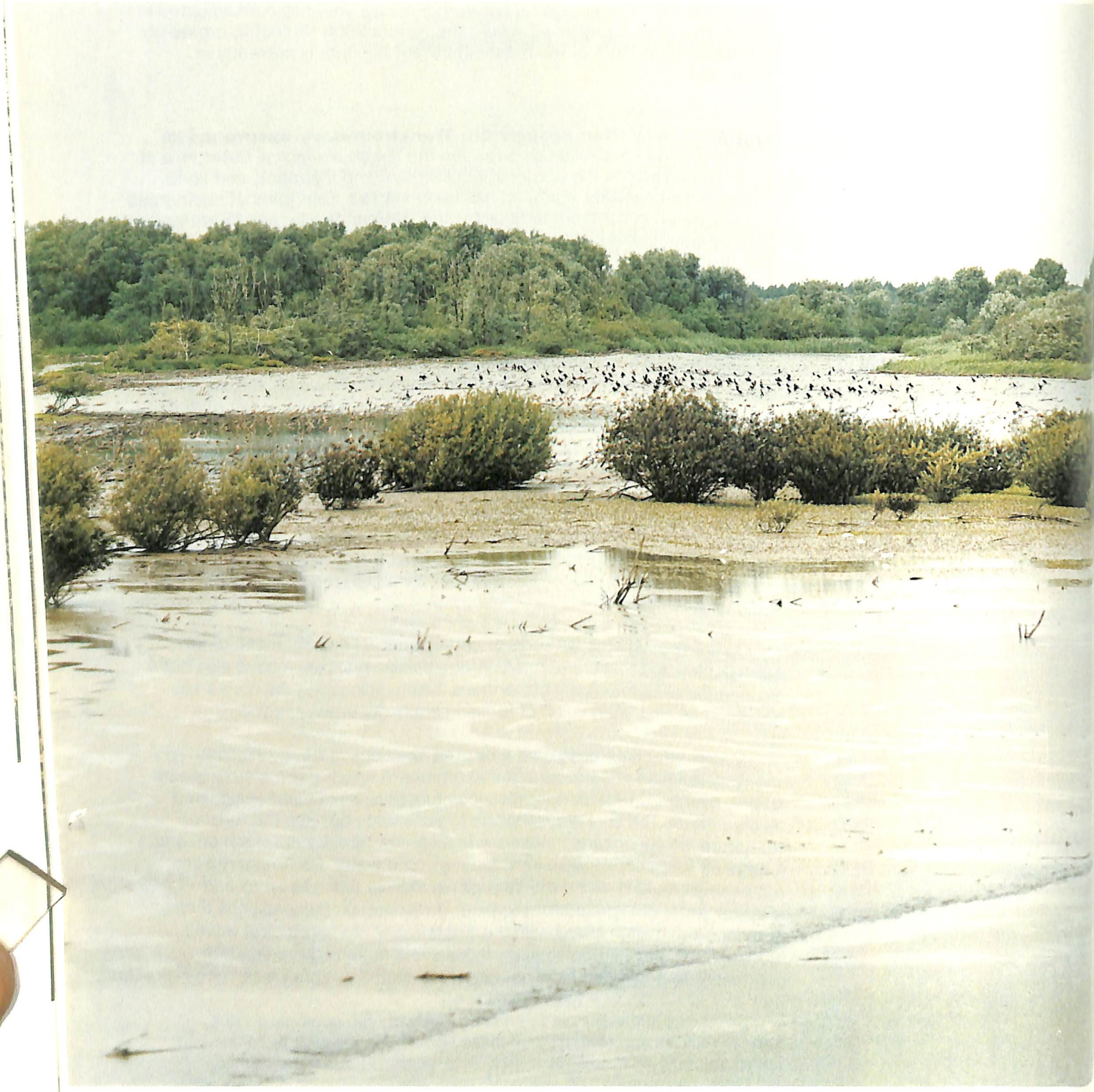
Further specification of zones and/or protected regions is possible in regional planning.

In some cases the biotopes of certain species characteristic of the Netherlands and that are of major international significance have also been designated as core areas. Furthermore, when delineating the core areas account has also been taken of foraging areas of certain species.

When selecting these core areas the functions currently allocated to them were taken into account. Some regions in which there are prospects for the eventual interweaving of various functions have been designated as core areas. The core areas include regions with, besides the function for nature, an agricultural function, a function for forestry development and a function for fisheries. Also included are some water catchment regions, recreational regions, sea defence regions, military exercise areas and areas of water designated for shipping. Under certain preconditions these functions can be combined with the existence of high ecological values. Industrial regions, harbours, urban regions and regions designated for residential development have not been designated as core areas.

So, the core areas include existing areas of high ecological value, country estates and forests, as well as agricultural areas of historical and scenic value.

The policy regarding the core areas aims to safeguard and enhance existing phenomena of ecological value. Developments that would adversely affect nature conservation will be excluded and the appropriate management will be made possible. Measures will be taken to counteract the deterioration of the quality of the environment, especially of



Oostvaardersplassen, core area in the national ecological network

groundwater and surface water and to prevent changes in the water regime that have an adverse effect on the natural environment. Measures will also be taken to protect geomorphological and landscape patterns. Finally, natural processes (e.g. migration) and quiet will be sustained.

Management objectives will be refined by establishing references for the core areas, taking account of local conditions. A reference or reference system is an existing or well-described ecosystem from which norms can be derived for other situations. These norms may then be used to decide on a management strategy, though the actual conditions described in the reference system need not be achieved or approached.

In farming areas the provisional core areas cover twice the area of the finally delineated area. This is to allow leeway for ecological and management considerations when drawing up concrete management plans. When preparing these management plans (this includes delineating areas and deciding on their status) the agricultural potential of the areas in question will be carefully weighed against their potential ecological and scenic value. The aim is to minimize the time lag between the provisional and exact delineation of regions (see alco chapter 8). Efforts will be made to ensure that during this period the phenomena of value in the entire region are not irrevocably lost.

5.1.2 Nature development areas

Those areas that offer realistic prospects for the development of phenomena of ecological value that have national or international significance have been incorporated within the ecological network as so-called "nature development areas". They include areas suitable for the development of nutrient-poor (wet) grassland, marshland, and marshy woodland, not only in the low-lying regions of the Netherlands, but also in the wetter parts of the other (sandy) regions. Allowing these ecosystems to develop will bring the concept of an interconnected network of (wet) areas of high ecological value within reach. Dry parts with potential for nature development have also been included.

The provisional nature development areas indicated on the map are three times as large as the area specified in the policy on nature development. As in the case of the core areas, this is to allow leeway when finally delineating the actual nature development areas for nature development projects.

The policy on nature development areas before the final delineation will aim to prevent such areas from irrevocably losing their potential for nature development. This will be done without imposing disproportionate restrictions on the existing functions of these areas, and will be based on the functions assigned to these regions by current planning and development policies. A basic protection of the geomorphological and physical situation will be guaranteed. Furthermore, the quality of soil, water and land, as well as the groundwater level must at least be sustained. Housing, motorways and other infrastructure, industry, and large building complexes should be excluded from these areas.

In principle, interventions such as water control works that cause irrevocable damage to the structure of the soil should also be excluded from these areas. Other interventions that affect the soil structure (for example, deep ploughing), and water catchment or infiltration works that affect groundwater movement, must be avoided too.

The parts of nature development areas that already have high ecological value will be handled similarly to the core areas.

The Dutch government's policies on planning and development, environment and surface water will be implemented to safeguard the potential for nature development. Projects will be carried out as part of landuse schemes or as part of management-plans for lakes and rivers. In addition, independent nature development projects will be carried out by acquiring land and laying it out and managing it appropriately.

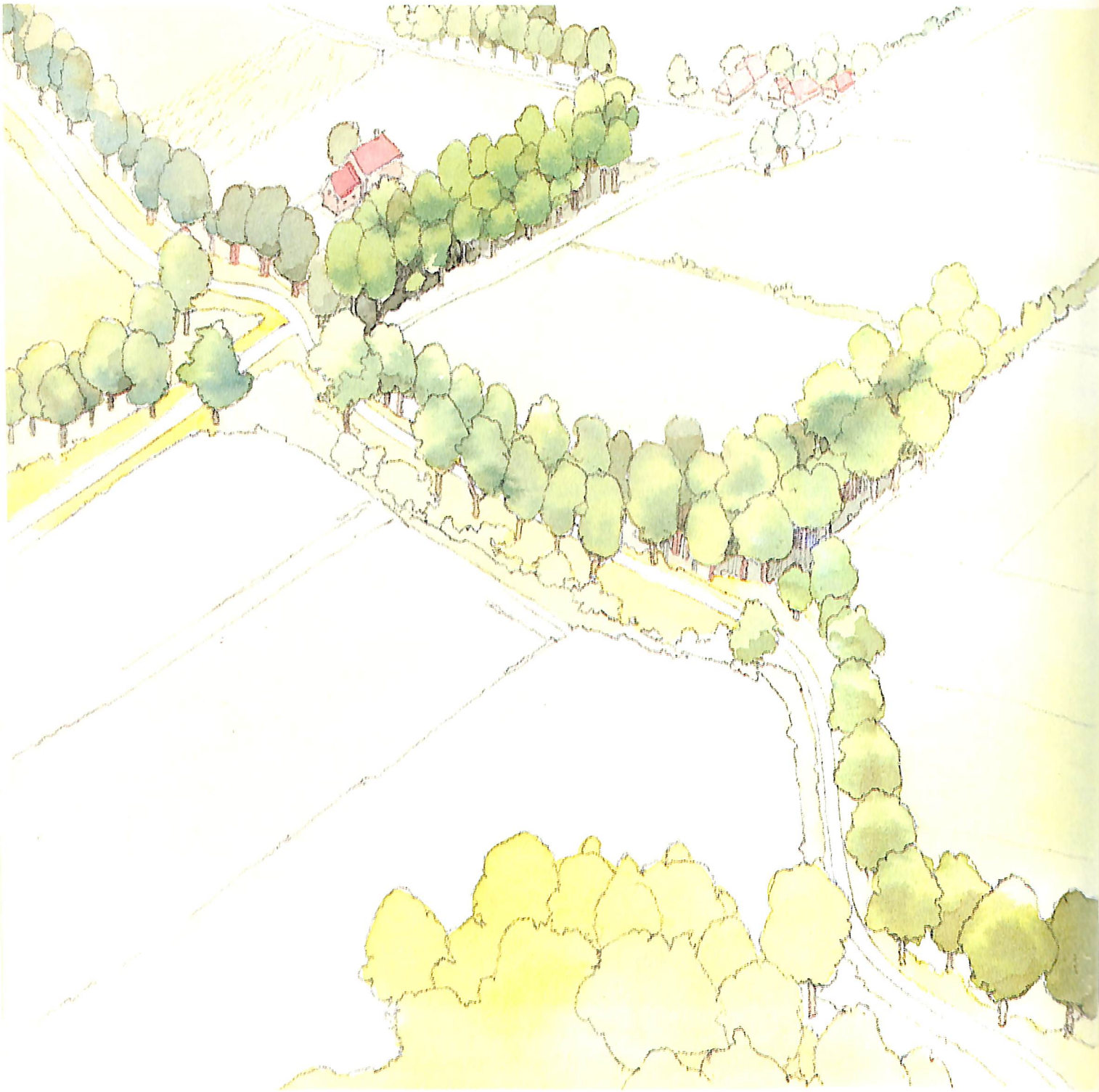
5.1.3 Ecological corridors

Ecological corridors consist of areas or landscape structures which contribute to restore the possibilities for migration within and between core areas. To create such corridors, barriers must be removed between subpopulations of species or between a populated habitat and an area where species have recently become extinct, or an area potentially suited as habitat for the given species. Ecological corridors have also been proposed when there are barriers within the boundaries of one specific habitat; for example, between a badger set and the foraging areas of a badger population, or between the spawning ground and the maturing grounds of species of fish. To be able to designate ecological corridors to benefit a given species, the present and historical distribution of that species and its requirements relating to connecting routes (e.g. linear structures as ditch sides or stepping-stones must be accurately known. This information is available for the otter, the badger, red deer and certain species of fish (sea trout, river trout, salmon) in the Netherlands. Provisions made for these species will benefit other species living in the core areas.

The large rivers of the Rhine-Meuse complex form an important component of the national network of ecological corridors within and between the core areas. Direct connecting routes exist between the river areas and parts of the marshland regions, as well as with lakes and the sea. These ecological corridors are indicated on the map at the back of this document.

When delineating the definitive ecological corridors the possible future developments in landuse (e.g. recreational use, clay or gravel extraction, routing of roads and pipelines) will be borne in mind. The area covered by the corridors is relatively small. In most cases, these ecological corridors are strips of land along roads and waterways, and short cuts through fields.

Particularly wet parts of the Netherlands have been designated as nature development areas. Nature development is also opted for areas along the Rhine and Meuse, for example the Blauwe Kamer



Ecological corridors are an essential element of the national ecological network

Existing procedures available under the Dutch government's nature policy, landuse policy, and its policies relating to recreation, the extraction of clay and gravel and the provision of roads, pipelines and power lines will be followed to create the ecological corridors.

5.1.4 Buffer policy

The Dutch government's buffer policy will focus on the use of structural measures to create sustainable conditions that will enable the desired ecological value to be reached or maintained within the national ecological network.

The various areas of high ecological value require different types of buffering, depending on the nature of the ecological system, the size of the area in question and what sort of effects need to be buffered. It is therefore impossible at this stage to specify the size of buffer zones and how the land within these buffer zones should be developed or used. However, measures will focus on preventing water from undesirable sources from flowing into an area, on separating polluted and 'clean' systems of groundwater and surface water, on restoring groundwater flows, on achieving hydrological buffering, and on protecting the quality of shallow groundwater.

Local hydrological buffer zones will be created around core areas vulnerable to dessication (falling water tables). Dessication can also be prevented by strategically managing the large reserves of groundwater near and within the core areas. Deliberately maintaining or developing strategic reserves of groundwater is also a form of buffering.

Various other forms of buffering may be required in order to prevent negative effects of acidification, eutrophication and contamination. Firstly, in some places it will be necessary to designate certain regions outside the core areas where groundwater is protected from the inflow of eutrophic and polluting matter. It may be necessary to construct buffering basins or diversion channels in order to collect or redirect waste flows of polluted and/or eutrophic surface water and any silt it may contain. Furthermore, the wet core areas will benefit if the water naturally present in those regions is retained and the inflow of water from undesirable sources (in particular, polluted water from the large rivers) is inhibited.

In a number of situations buffering against atmospheric deposition (particularly nitrogen deposition) is necessary: this can be achieved by applying countermeasures in a zone several hundred metres wide bordering the threatened core area.

Finally, in a number of instances buffering against excessive noise, light and other disturbance is required. This can largely be achieved within the core areas proper.

5.1.5 Curative environmental policy

In the Netherlands the National Environmental Policy Plan specifies the targets for the reduction and prevention of environmental problems. However, often nature cannot wait until these targets have been reached sufficiently and mitigating measures are necessary.

The curative policy in the Netherlands ("effect-oriented policy") uses temporary measures to create conditions that will enable the basic qualities of ecosystems to be restored, maintained or developed. Policies of this type will be used in conjunction with the buffer policy. Unlike the latter, however, curative measures do not relate to planning or development policies, but to management policy.

Thus, as well as using preventive (source-directed) strategies to abate the eutrophication of surface water, various measures will be aimed at specific regions. Here, the problems will be tackled via integrated pilot projects. Experiments will be done to clean up polluted sites within the ecological network (e.g. areas affected by lead pollution) using environmentally benign sanitation techniques.

Furthermore, curative policies will be employed in regions and ecological systems characterized by oligotrophy and mesotrophy and/or weak buffering. In almost all situations, these regions have been seriously affected by the acidifying and eutrophic effect of atmospheric deposition (especially of ammonia) and will only be able to recover and develop if this deposition is dramatically reduced and appropriate management is applied. There are two main groups of management measures:

- eliminating the excessive biomass that has been stimulated by the fertilizing effect of nitrogen compounds deposited atmospherically in recent years. This can be achieved mechanically by dredging, sod cutting, chopping etc., or biologically, for example by periods of intensive grazing;

- increasing the buffering capacity of soil and water affected by acidification by adding substances ecologically compatible with the system, in order to restore the original acidity characteristic of areas with weak buffering.

Rehabilitation of heathland (fore ground) after sod cutting

As long as the critical levels of acidification applicable to ecosystems are exceeded, these measures may have to be repeated periodically in order to reduce the effects of pollution and to retain the potential for full ecological recovery. However, curative measures should never replace source-directed strategies.

5.1.6 Creating the national ecological network

In the core areas limited changes in land use will be necessary in the interests of nature conservation and the landscape. In the nature development areas, however, the emphasis is on altering the use of land, and on redevelopment.

The way in which the policy on core areas and nature development areas is actually implemented will differ per region. In dune regions, parts of the river forelands, in closed estuary regions, tidal regions and the North Sea, the emphasis will be on consolidating natural processes; for example, by adjusting management and by making use of developments in other sectors that may contribute to reaching the objectives.

In the peat and marine clay regions, in one location the option may be to maintain the value and functions that are related to agricultural functions, whereas in another region the option might be to bolster the existing natural processes (in particular the development of marshland and marsh woodland). In marine clay regions the development of woodland will be encouraged too.

On the higher (sandy) grounds and in the hilly regions of South Limburg, the emphasis will be on retaining and restoring phenomena of ecological, cultural and historical value.

To achieve these objectives the national ecological network will be created via geographically and thematically defined projects, which are important to stimulate collaboration among administrative bodies and special interest groups. Also, legislative and financial regulations will be applied according to the findings of the projects (see chapter 8).

The provisions available for implementing the nature conservation policy in the different government sectors with regard to the national ecological network within a period of approximately thirty years are:

- systematically applying the Nature Conservation Act in existing areas of high ecological value within the ecological network;
- acquiring land (approximately 40,000 hectares) to expand the areas of high ecological value, woodlands and country estates within the ecological network to the size deemed appropriate;
- acquiring land for the benefit of nature development (approximately 50,000 hectares);
- doubling the area (from 100,000 hectares to 200,000 hectares) to which the Policy Document on Agriculture and Nature Conservation applies (i.e. environmentally sensitive areas). This includes acquiring land for the ecological network and creating opportunities for management agreements to be reached with farmers for land situated within the national ecological network, and creating facilities for management to buffer shallow groundwater in recharge areas (both the quantity and the quality of the water are important);
- applying the EC Hill-farming Directive more widely (to the river forelands, grassland areas on thick peat soils, stream valleys, hydrological buffer

National Park De Hamert, situated on the border with Germany

zones, and areas with a pattern of small fields on sandy soils). The boundaries of these areas will be drawn with reference to the ecological network. The areas in question must meet the applicable EC criteria;
- continuation of the system of financial support for nature management to nongovernmental organizations involved in the field of nature conservation;
- expanding the National Parks to cover the large areas of high ecological value within the national ecological network.

In certain situations the legal provisions for implementing the Dutch government's policy on planning and development and on the environment and surface water will be applied, in order to safeguard the ecological network.

5.2 Policy on areas of specific scenic value

The policy on the maintenance of areas of specific landscape and scenic value focuses on maintaining geomorphological/geological structures, cultural heritage and scenic value. Accordingly, a number of regions of exceptional significance has been identified.

The policy on areas of specific scenic value will place emphasis on conserving, restoring and developing the specific characteristics and structures in these areas.

Geomorphology and geology

The Dutch government will enforce or encourage responsible and conscientious practice with regard to areas of high geomorphological and/or geological values, with the aim of preventing large-scale interference in the relief and the soil structure and of avoiding unnecessary interference in currently active geomorphological processes. Only a limited number of geomorphological structures or elements require active management.

Where relevant, the Dutch government will support other governmental authorities and private enterprise, to encourage initiatives aimed at the protection of geomorphological structures and elements. The most important legal provisions for safeguarding geomorphological value are contained within the framework of the policy on planning and development. The Nature Conservation Act can also be applied in crucial situations.

Cultural heritage

The Dutch government will ensure or encourage a responsible and conscientious approach to areas with a special cultural heritage. The extent to which action will be required will depend on the pressure exerted to make changes in such areas and on the spatial structure of the characteristics.

The policy will focus upon:

- preventing "dissonant" activities that are out of keeping with the charac teristic parcelling of land and the characteristic pattern of roads and waterways, or, alternatively, adjusting this type of development in such a way as to ensure that existing phenomena of cultural and historical value remain recognizable in the landscape. The relationship between the settlement structure and the pattern of the subdivision of land is important. Land consolidation schemes, changes in the infrastructure (roads and waterways), excavations and land clearance and the siting of buildings or urban expansion are all potentially "dissonant";
- conserving structural elements in the landscape, in particular those that are spatially or functionally related to the surrounding cultural landscape (e.g., a landscape characterized by flood-refuge mounds, duneland estates in former dune reclamation areas);
- adapting the construction and style of residential areas and the location of farmhouses to the existing settlement pattern.

Furthermore, where relevant, the Dutch government will support initiatives of other government authorities and private enterprise aimed at the conservation and protection of phenomena of cultural and historical value.

Scenic value

The contrast between large-scale (i.e. open) and small-scale (i.e. small parcels of land, more hedges) regions must be retained as much as possible. In the Netherlands small-scale areas possess a high scenic value and generally score above average in terms of cultural heritage, geomorphological, geological and ecological value.

The policy aims at actively preserving the small fields and hedges characteristic of the small-scale landscapes of the Netherlands. This will be achieved by using the procedures available within the government's policies on development and planning, land use and development, landscape conservation, and outdoor recreation, to prevent undue scaling up and to promote landscape conservation.

5.3 Species policy

The policy relating to species is aimed partly at species whose habitats lie within the ecological network, and partly at species whose habitats occur elsewhere. For this policy to be effective the basic quality of the environment must be good. The policy is implemented through measures that supplement the effective day-to-day management of the areas in question, usually in the form of providing specific facilities and by running publicity campaigns. The wish to conserve and restore a natural (where possible) diversity of wild animal and plant species in the ecosystems concerned is central.

The protection of plant and animal species by legislation calls into question acts such as killing or trapping animals, disturbing animals or their habitats, and collecting plants. Such acts must not threaten the sustainability of populations or the ecosystem as a whole.

For many species a policy aimed at preventing actions that may cause damage to that species will suffice. But more active measures will be needed to protect, reinstate or manage certain species.

A list of more than 1800 species (largely plants) found in the Netherlands and that require active measures to ensure their occurrence has been drawn up. The inclusion of a species in such a list or document is helpful when the State or other authorities, or private individuals such as park wardens, volunteers, gamekeepers, and fish stock managers have to deal with that species.

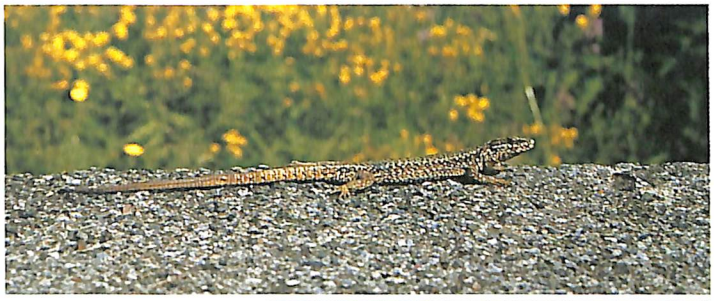
Knowing which species require extra attention will also help guide the management objectives for given areas. The actual or potential occurrence of conditions suitable for such species may prompt managers of areas with a high ecological value to take measures that are especially beneficial for those species. The presence of such species in an area is also an indication of the effectiveness of current management.

The Dutch government will stimulate initiatives taken by voluntary organizations, landowners and other individuals regarding species requiring extra attention. Where possible this will be done by giving government support, for example by promoting research and by making expertise and information available.

In addition, a number of species that require particular attention in the 8-year planning period of the Nature Policy Plan is selected from the 1800 species requiring extra attention. Species at risk of dying out are being given high priority. Special attention will be given to:

Mammals:	bats, badger, otter, seal, common porpoise, tundra vole;
Birds:	spoonbill, barn owl, geese, kingfisher, grey patridge, crane, black grouse, corncrake;
Amphibians and reptiles:	yellow-bellied toad, midwife toad, tree frog, great crested newt, wall lizard, grass snake;
Fish:	weatherfish, spined loach, salmon, sea trout, brown trout, bitterling, pike, ray, dogfish;
Invertebrate animals:	butterflies, dragonflies, crayfish;
Plants:	weeds of arable land, marsh marigold, water soldier, snake's head fritillary, bardfield oxlip, yew tree, lime tree, orchids, mural plants, scurvy grass, chantarelle.

Special attention is, for example, given to bats (mouse-eared bat and daubenton's bats), marsh marigold, dragonflies (demoiselle), kingfisher and wall lizard



Embankments of fields with hedges have to be maintained

Furthermore, the aim will be to stimulate the creation of conditions beneficial to species that are closely related to the agricultural function of rural areas. This will benefit ecological value in general.

The Dutch government's policy on species that cause damage and species that are exploited is based on the internationally accepted principle of "wise use": i.e. hunting or exploitation is tolerated provided it does not threaten the existence of a species or population. The government will also stimulate the application of measures aimed at protecting or improving biotopes. This type of management will predominantly be the responsibility of private individuals. The government will therefore encourage the authorities and the interested parties (such as licensed hunters, users of land, fish stock managers and groups of volunteers involved in the management of landscape elements) to collaborate in drawing up management plans.

5.4 Promoting phenomena of general ecological value

Outside the national ecological network the Dutch nature policy will focus on phenomena of general ecological value. These phenomena benefit from the proper functioning of the national ecological network, since this network is the source of dispersion by which the other areas are populated with plant and animal species. The areas outside the national ecological network provide the foraging ground for the species living within the ecological network, but are also the living ground of a number of (more general) species.

An example: the peatland area

For the peatland area within the ecological network the emphasis is on the exceptional ecological values of (poor) grasslands (including ditches), marshes, and pools and canals. Outside the ecological network more general values can be found, particularly species adapted to agricultural land use, such as: marsh marigold, meadow-birds (for example lapwing), hedges and hedgerows being a habitat for ermine and weasel, stable population of hares, frogs and toads.

Many different species and biotic communities characteristic of the Netherlands having international significance can only survive if the natural environment over large parts of the Netherlands meets certain qualitatively good basic conditions. Areas of high ecological value have strong spatial relationships with their surroundings. So, to guarantee the sustainability of the national ecological network it is also necessary to promote phenomena of general ecological value in the regions outside that network. Adequate policy for environmental (including water) management is therefore essential, in order to ensure the sustainable existence of phenomena of general and of more specific ecological value.

Efforts will have to be intensified in order to create the desired phenomena of general ecological value. One of the ways of doing this is by instigating research on the feasibility of combining nature conservation with the economic use of land; another is to provide occasional financial incentives for nature conservation. In addition, when implementing the government's policies relating to planning and development, to water and to the environment the aim must be to promote phenomena of general ecological value.

This can generally be done relatively simply within the framework of the nature conservation policy, without imposing restrictions upon the use of land in these areas. Examples include: managing roadsides and ditches in a nature-friendly way; fitting wildlife guards on mowing and harvesting equipment; planting shrubs and trees, etc. The landusers themselves are responsible for this. The government will disseminate information on ways of incorporating a more environmentally conscious land use to target groups such as farmers, gamekeepers, fish stock managers, and officials responsible for waterways and public roads.

Some small areas not included in the ecological network do nevertheless have high ecological value and should be protected in provincial and and other planning schemes. Furthermore, existing policy instruments relating to nature and the landscape will continue to be applied, to protect phenomena of general ecological value and nature reserves.

The Dutch government's policy on nature conservation and landscape may in some cases result in restrictions being imposed upon the use of land. This will have consequences for certain aspects of planning and development. In general, landowners will not receive financial compensation for incurring any such restrictions, unless disproportionate restrictions have been imposed upon the use of land.

The general nature conservation policy and certain components of that policy will (also) be supported and implemented on the basis of the government's policy on the conservation of certain species. Thus, for example, the pike has also been chosen as a priority species to represent the general ecological value of certain aquatic environments.

The Nature Policy Plan aims to concentrate the application of policy instruments directed at the safeguarding and management of ecosystems within the national ecological network and of the regions of specific scenic value. This does not rule out a more extensive application of policy instruments outside the network. In concrete terms, in exceptional cases it is possible to apply the policy to the ecologically sensitive agricultural areas mentioned in the Policy Document on Agriculture and Nature Conservation in peat-pasture regions outside the nationale ecological network. Moreover, in peat-pasture regions the European Community's Hill-farming Directive can be applied.

It is envisaged that the legal provisions for maintaining the landscape will be particularly applied in the so-called small-scale regions of the Netherlands (i.e. old agricultural areas characterized by a pattern of small fields, with surrounding hedges and spinneys). The Hill-farming Directive will also be applied locally in these areas.

5.5 Support for nature and landscape policy

It is vital to have sufficient public support for conserving nature and landscape. The general public in the Netherlands must be encouraged to adopt attitudes and behaviour beneficial to the protection of nature and elements of scenic value. People whose work or leisure pursuits make them especially sympathetic to protecting or enhancing nature and landscape form a specific target group.

Attention is paid to the conservation and development of nature in urban areas

The increase of public support for nature and landscape conservation is important to create the national ecological network and also to foster phenomena of general ecological value. It is essential to have a varied natural environment close to where people live and work. This may also help to encourage people to behave in ways that impose less of a burden on nature or the environment.

Conservation and development of phenomena of general ecological value are therefore important elements of the Dutch nature conservation policy. Also, special attention is paid to nature in urban areas, by means of specific projects and through the policy on species (for example the protection of mural plants and the wall lizard; see 5.3).

Public support for the government's policy on nature and the landscape can be fostered by:
- nongovernmental organizations;
- environmental education;
- informing the public;
- target group campaigns.

Nongovernmental organizations

There is a long tradition of private initiative in the field of nature conservation and landscape policies and environmental protection in the Netherlands. The nongovernmental organizations involved often receive structural funding from the national and provincial government for their work and their administration. They acquire and manage areas of high ecological value, country estates and forests, and are active in the field of nature studies and environment education and in drawing attention to undesired developments in relation to phenomena of ecological and landscape value.

Furthermore, ways will be pursued of improving public support of the nature conservation policy via organizations not primarily engaged in furthering the interests of nature conservation or the landscape, but which could nevertheless contribute significantly to its implementation. This could be done by increasing their involvement in certain projects. The aim will be to stimulate various organizations to become committed to the development and protection of phenomena of ecological and scenic value. To this end three main strategies will be pursued.

The first strategy will be to allow the nature conservation policy to link up with activities in other sectors of society, thereby enabling several objectives to be fulfilled at the same time. Suitable link-ups will generally be found in sectors such as outdoor recreation, gravel and clay extraction, forestry, water exploitation, water management, fishery, fish stock management and (extensive) farming. Discussions will be held with representatives from these fields, with the aim of achieving concrete agreements for co-operation.

Collaboration via partnerships between government and nongovernmental organizations is another way of involving nongovernmental organizations in the implementation of the Dutch government's nature conservation policy. This collaboration in PPPs ("public/private partnerships") would enable joint projects to be carried out. The best opportunities would be for relatively large-scale projects with a nature development component, in which the common interests of the nature conservation policy and the other sectors are immediately apparent, and the expertise (especially in the technological sense) and market orientation of the private partners are particularly valuable. The prospects for this strategy will be investigated further.

A third form of nongovernmental involvement is sometimes referred to as "nature sponsoring". Industry and commerce are becoming increasingly willing to make funds available for nature and landscape conservation. The government intends to stimulate this.

Environmental education

Environmental education is an important way of engendering the necessary support for the nature conservation policy among the general public. The Dutch government outlined its policy on this in the Policy Document on Nature Studies and Environmental Education. The main points of this policy are:

- environmental education will not have immediate results: it is a long process that involves enhancing awareness, encouraging more personal involvement, initiating learning processes, and pointing out the individual's responsibilities;
- environmental education is not concerned exclusively with society, or with the environment, but with the relationships between them.

These principles will be applied according to the main thrusts outlined in the Policy Document on Nature Studies and Environmental Education, i.e.:

- basic ecological training, i.e. stimulating a widespread basic knowledge and understanding of ecology;
- practical training in ecology, i.e. raising the level of knowledge, understanding and skills of those who deal directly with nature and the environment, whether in their daily work, as volunteers, or otherwise.

By its very nature, basic training in ecology offers opportunities for broadening public support, for example for measures taken to protect areas and species (e.g. as proposed in the Nature Policy Plan).

Practical training in ecology will be given greater priority, through existing activities (notably in the sphere of agricultural education) and new initiatives.

Environmental education, including basic ecological training, will be given greater priority

Informing the public

This is closely related to environmental education, but is generally directed towards one specific theme and has a more ad hoc nature. In the context of the Nature Policy Plan its major aim will be to broaden public support for the government's nature conservation policy, chiefly by disseminating information on this policy.

Target group policy

Certain groups in society (ranging from organized groups to individuals in unorganized groups) play a key role in realizing the policy priorities. In practice the policy measures will therefore be directed primarily towards the concrete actions of these groups. Aspects of the policy have been translated into legislation which has direct effects on these groups, but other aspects depend on the willingness of certain groups to co-operate or take initiatives. The government-initiated activities directed towards increasing that willingness fall under the heading of target group policy.

Target group policy as indicated in the government's other policy plans (see 1.2) will be supported because of the tight relations with the policy for the landscape and the natural environment.

In addition, a selective target group policy, defined as developing and applying measures and organizing campaigns aimed at specific groups in society whose co-operation is important if the objectives of the nature conservation policy are to be achieved, will be pursued. These groups primarily constitute or belong to sectors in society that may be induced to adopt ecologically sound practices, or that are eligible for government support for such practices.

The policy involves education, information and financial support. Wherever possible, target groups will be advised on which actions to take.

5.6 Research

Research will be extended in several fields (notably biogeography, population dynamics, the fixing of environmental norms, "reference systems" and ecohydrology), to underpin the projected thrusts of the nature conservation policy. Inventorying and monitoring will be intensified.

Biogeography and population research

The need to create ecological corridors for certain species and the possibilities for doing this have to be studied further, with a view to ensuring the proper functioning of ecosystems. The results could be very useful for the nature conservation policy, if used as input to model the relationships between the local dying out of a species and the quality of the ecological network and its surroundings.

Fixing of standards in relation to the natural environment

This is an important way of implementing the nature conservation policy. Such standards are related to the requirements that the immediate environment of a species or biotic community must satisfy if that species or biotic community is to survive in the long term.

More research needs to be done on the priority substances and ecosystems or species, so that norms can be specified. Background or reference values must be known. A risk analysis would be very useful, so the results could be translated into policy.

Research on reference systems

The policy's accent on nature development calls for more research on methods for steering nature development. A key element is the choice of reference systems. They indicate what development stages must be expected and how the developments can best be manipulated. Little is known about this for terrestrial and aquatic ecosystems.

Ecohydrology

It is vital to understand hydrological processes to be able to conserve phenomena of ecological value in the long term. Little basic information is available. In the Netherlands no detailed surveys have been done of the hydrological and hydrochemical condition of the shallow groundwater, except in small areas. Neither is much up-to-date information available on patterns of groundwater flow, on the relationship between recharge and discharge areas, and the relationship between surface water and groundwater.

Inventorying and monitoring

To be able to implement the nature conservation policy basic information must be available at a local and regional scale, on:

- ecological and scenic value;
- abiotic environmental conditions that are relevant to ecological and scenic value;
- human activities.

The present inventorying and monitoring needs to be co-ordinated, to improve efficiency (this holds especially for the inventorying and monitoring of flora and vegetation, and of birds). The inventorying and monitoring of mammals, reptiles, amphibians, fish, and certain terrestrial or aquatic invertebrates needs to be intensified.

6. Effects of the nature conservation policy in other policy fields

The general thrust of the nature conservation policy also affects the Dutch government's policies in other areas. This is both a consequence of the policy itself and one of its aims.

6.1 Co-operation with other government authorities

Although the Nature Policy Plan was devised at national government level, this does not imply that its implementation is restricted to the national government. On the contrary, the objectives set within the framework of the policy cannot be achieved without the help of local and regional government authorities, nongovernmental organizations and private individuals. The national government has assumed that the solutions chosen for the problems relating to nature conservation and the countryside can also largely be implemented by people affected by the problems, and that local and regional government will incorporate nature conservation policy in their strategies.

The national government's decision to create a national ecological network required the provincial governments to help in identifying the core areas of that network. Further co-operation is necessary for the sustainable conservation and development of the selected areas. For the areas of land outside this ecological network national, provincial and local government authorities are jointly responsible. The national government's role is primarily to provide financial support for this, where necessary and feasible, and to supply information, advise, and contribute to research and experiments.

6.2 Measures to be taken in nature-related policy fields

6.2.1 The environment

The safeguarding and development of ecosystems, species and regions of high ecological value also forms one of the major points of departure in defining the general environmental policy. As far as nature and the countryside are concerned, in many cases the required quality of the environment will have to be attained within a considerably shortened time frame, otherwise the environmental degradation will be irreversible. In some ecologically sensitive areas, particularly the core areas of the national ecological network, high targets will have to be set for the quality of the environment, to safeguard the populations specific to those areas.

In the national government's environmental policy the principles of maintaining a given situation (the standstill principle) or returning to an earlier state, which are the approaches underlying Dutch environmental policy, will also be applied to the objectives of nature conservation policy.

The Dutch government's policy's aims on acidification and eutrophication are mainly:

- to prevent the most serious effects of acidification on woodlands on poor soils, a more stringent policy on atmospheric deposition is incorporated in the National Environmental Policy Plan, and is also directed at the protection of more sensitive ecological systems such as heaths, pools and peat-moors;
- a programme will be carried out to counteract the effects of acidification and eutrophication in areas that are sensitive to these phenomena and are part of the national ecological network: dunes, heaths, pools, woodlands, peat-moors, nutrient-poor grassland (dry or wet), carr peat areas, and calcareous grasslands (see also 5.1.5);
- the present policy on the use of pig, poultry or cattle slurry to fertilize fields will be tightened up, especially as regards the levels of nitrate permitted in the groundwater in groundwater-dependent and nutrient-poor areas of high ecological value.

Furthermore the national environmental policy will have the following implications with regard to nature policy:

- the main aim as regards the translocation of environmental contaminants will be to prevent extensive pollution in areas of high ecological value (the standstill principle). Therefore the acceptable levels of chemical substances for these areas are those laid down as the natural and/or background levels for the areas in question (and aim to safeguard the quality of the environment). For the remaining areas, whose nature value plays only a secondary role, the general quality of the environment will be formulated by fixing standards directed at maintaining phenomena of ecological value in the natural environment. These standards will be based on the requirements of vulnerable priority species;
- occurrences of soil and water pollution within or near areas of high ecological value have been inventoried. Further work will concentrate on the development of environmentally-benign rehabilitation techniques. As a rule, the first priority will be given to soil clean-up operations carried out by provincial government authorities to rehabilitate polluted areas of high ecological value;
- as regards the prevention of nuisance caused by excessive noise, the aim will be to shorten the list of areas exempted from being designated as quiet areas;
- as regards the policy on the risk of environmental disasters, further account will be taken of the often irreversible ecological damage such disasters cause.

For the creation of a sustainable ecological network and the preservation of countryside with regard to cultural heritage and geomorphological structures and elements the provincial government authorities will play a key role, by using the powers granted them under the Soil Protection Act and by designating soil protection regions;

Furthermore, sustainability will be aimed for by adjusting the localized approach of the environment policy to nature policy. When doing so, specific attention will be given to fixing maximum levels for nitrates, and to problems of falling water tables. In areas adjacent to the core areas, it may be necessary to set specific requirements in relation to environmental hygiene, especially if there is an ecological relationship between certain types of land use in these boundary areas and the ecological value of the core areas.

6.2.2 Water

The Dutch government's policy on groundwater and surface water calls for integrated management and control and for the further improvement of the quality of water and sediments. Important are:

- the implementation and application of ecological norms in water management;
- a further reduction of eutrophication, by intensifying measures to prevent eutrophication at source and by using an integrated approach to prevent eutrophication in certain areas;
- maintaining the characteristics of the water in the area in question, e.g. by segregating clean and polluted water systems (taking account of the possibilities for fish migration);
- carrying out pilot projects using halophytes as "filters" in the first stages of the management of waters with a high ecological value;
- refining the concept of ecological potential for areas relatively less affected by pollution from groundwater or surface water and with relatively clean sediments, or areas that can relatively easily be isolated from polluted water systems; and furthermore, to investigate what measures can best be used to keep these areas clean;
- the management and control of the amount of water available in an area, adjusted to the ecological function of that area, by controlling the surface water level, the water table, and reserves of groundwater;
- rehabilitating natural groundwater systems and flow patterns, in order to prevent desiccation caused by falling water tables, eutrophication (this can be countered by buffering) and the undesirable influx of water (conservation of water);
- devising directives on how to deal with allochthonous water, falling water tables, how to isolate areas, etc., while maintaining the diversity of types of water;
- harmonizing the plans for water management and control with those for ecosystem management and control.

The nature conservation policy will also result in a focus on habitat conservation and rehabilitation, especially by improving the possibilities for the migration of fish and by encouraging landowners to allow the banks of ditches and waterways to develop into ecologically valuable biotopes.

The Dutch recovery plan for the otter

Published by the Ministry of Agriculture, Nature Management and Fisheries, the Dutch recovery plan for the otter is an example of the focus of nature policy on the high ecological values of waterways. The recovery plan stresses the need for intensive efforts to safeguard habitats, ensure good water quality, restore corridors, etc. Priority is given to the region of Friesland-Overijssel.

Part of the otter-plan is on the promotion of otter-friendly banks of ditches and waterways. For example, new banks should be constructed flat, with a height less than 30 cm and covered with shrubs and trees. Especially in ecological corridors, facilities to enable wildlife to climb out the water and the construction of semi-natural bankside profiles is promoted when watercourses are adjusted or newly cut.

Furthermore, more attention will be paid to the interrelationship between the large lakes and rivers, with the rivers of the Rhine-Meuse complex as a common link between the most important water systems in the Netherlands.

The current situation will be the point of departure for sustainable management: the Wadden Sea (including the Eems-Dollard) and the Oosterschelde and Westerschelde will be managed as tidal regions, Lake IJssel as a large freshwater lake, and Grevelingen as a saltwater lake.

The possibilities for designating protected regions in the North Sea and in large areas of water characterized by having exceptional ecological qualities will be investigated. In these regions opportunities for nature development will be pursued.

Where appropriate, international measures will be taken. In this, the Rhine Action Programme and the North Sea Action Programme are considered crucial for the improvement of the water quality and the quality of sediment biota. The Dutch government aims to set up similar international action programmes for the rivers Meuse and Scheldt and other water systems.

6.2.3 Town and country planning

The aspects of the Dutch government's nature conservation policy that have a bearing on town and country planning must affect all government levels. For the national ecological network the following points are relevant:

- the core areas of the ecological network, and areas with specific scenic value require a special planning and development policy, to maintain their spatial structure. The aim is to protect geomorphological and landscape patterns and high ecological values, and so to exclude developments such as motorways, power stations, large-scale recreational facilities, further urbanization and new excavations. Human activities that do not undermine the existence of core areas will be permitted in certain zones designated for that purpose. Incompatible activities include motocross, flying ultralight aircraft, and golf courses;

- nature development areas have to be prevented from an irreversible erosion of the potential for nature development, without imposing disproportionate restrictions on the functions already allocated to these areas;
- ecological corridors will be protected against barriers for the migration of species;
- through adequate planning of functions buffer-zones can be created around the national ecological network.

Town and country planning are also important for the conservation of areas of specific scenic value. Incompatible development of functions will therefore be obstructed.

Phenomena of general ecological value have to be maintained by restricting and controlling competition between the functions allocated to an area. The further isolation of "natural" areas must be prevented, and the encroachment of suburbanization in the countryside must be kept in check.

It is vital to use landuse planning to designate and hence safeguard areas of ecological and scenic value. This is especially important where the need for active management and control has not yet arisen.

6.2.4 Land development

Integral rural development programmes in the Netherlands ensure that the rural areas are developped with a multiple aim on the use of land with regard to agriculture, infrastructure (including waterways), recreation, and nature and the environment. Rural development projects are, or have been, applied for almost all over the country. A broad range of activities are distinguished: re-allotment of parcels, the improvement of watermanagement, of facilities for open air recreation and of accessibility, landscaping, and the conservation, improvement and development of nature areas. It is the main task of the Government Service for Land an Water Use to plan, prepare and execute these projects in the Netherlands.

Applying the legal provisions available within the policy for land development is essential for the implementation of the Dutch government's policy on nature conservation and landscape. Existing landscapes, land parcelling and water management may have to be modified in order to enable natural resources to be effectively managed and controlled. This particularly applies where farmland has been designated as a nature development area and therefore has to be transformed into an area of high ecological value. Under the Land Development Act it is possible to purchase and exchange land, and to carry out work without having to obtain permission from landowners for each separate operation or activity. The national Land Development Act is also an excellent means of designating ecological corridors which, by definition, are often adjacent to private land.

Furthermore, land development projects offer good opportunities for stimulating co-operation among various administrative bodies and owners/users of (agricultural) land.

Farmers in so-called "management areas" will be further stimulated to contribute to nature conservation by means of agreements on the use of their land, financially supported by the government

6.2.5 Management

The main principles for the management of areas of high ecological value are:

- management is more efficient in larger areas;
- where possible, management should be carried out by the owner or local manager of the (nature) area;
- ecological processes have to be taken into account whenever deciding if and what kind of management is being applied.

The contribution of farmers to the management of ecological values is particularly relevant in areas designated as management areas under the Policy Document on Agriculture and Nature Conservation, which are all environmentally sensitive areas, and in those areas to which the Regulation on Land Maintenance Agreements applies. Agriculture in the management areas can be considered to be a "service", with nature conservation and landscape management as its spinoffs.

Farmers can also play an important role in the control and management of nature reserves. It has been proposed to amend the Agricultural Holding and Land Rent Act to create more possibilities for this. By promoting integrated farms and forms of extensive agriculture favourable circumstances will be created for the development of a more diverse flora and fauna.

In situations in which active management of areas of high ecological value within the national ecological network is required, the desired management can be encouraged by applying the regulations of the Nature Conservation Act. Management plans can be set up on a voluntary basis, so that government grants can be obtained for such management.
The Nature Conservation Act is also applicable in situations in which there is a risk that phenomena of high ecological value will be irrevocably lost.

Landscape elements in core areas in the ecological network can be managed, rehabilitated and maintained by applying the legislation for the designation and maintenance of landscape elements.

6.3 Sector-related measures

6.3.1 Agriculture

The Dutch government's agricultural policy contributes in various ways to the desired policy for nature conservation and the landscape. The Nature Policy Plan makes provision for various measures and initiatives to supplement current agricultural policy, which is directed to a sustainable, safe and competitive form of agriculture:

- where possible, stimulative regulatory schemes for agriculture will be used more intensively to encourage investments that will benefit nature conservation;
- farmers already voluntarily manage meadow birds, wild animals and certain vegetations in areas of ecological importance. This will remain a central theme and be encouraged wherever possible. In exceptional cases encouragement premiums or once-off compensatory payments will be used as additional inducement;
- the agricultural extension service will promote agricultural practices that contribute to the objectives of the nature conservation and environment policy;
- integrated farm enterprises will be encouraged, because this will benefit the diversity of flora and fauna.

Nature Policy Plan project 36: Nature-friendly farming methods

A project has been started to survey the possibilities of stimulating the integration of agriculture and nature conservation in the different regions of the Netherlands. Farmers play a key role in the management of large areas of the national ecological network. In grassland-areas the project will focus on meadow-birds and the ecological importance of ditches and ditchsides. In other agricultural areas the focus is on weeds of arable land around the fields and on forelands of rivers.

The agricultural policy in the Netherlands as laid down in the Agricultural Structure Memorandum will have a positive effect on ecological value. The aim is for agriculture and horticulture to contribute substantially to restoring the general quality of the environment by the year 2000. The use of crop protection chemicals will be substantially reduced.

An example of a voluntary activity of Dutch farmers: protection against grazing and trampling of nests of meadow-birds

In the Netherlands a reduction in agricultural emissions of NH3 to 50% of the 1980 level could easily be achieved by the year 2000. However, it has been decided to aim for a reduction of 70%, if this is both technically and economically feasible.

Existing policy aiming to reduce phosphates in manure will be augmented by a policy to reduce the leaching of nitrates.

6.3.2 Infrastructure

Among others, the restriction of the area occupied by roads, the prevention of the wasteful use of the countryside and the clustering of infrastructure will remain a precept of the Dutch government's policy.

With regard to nature policy, it would be desirable to devise measures to reduce the barrier effects of existing roads, canals, pipelines, etc. So far this has been done by building wildlife viaducts over motorways, tunnels for badgers, toads, otters, etc., passages in waterways for fish and other water organisms, and providing modified sheet piles alongside waterways.

Construction of a wildlife viaduct contributes to the reduction of barrier effects

Furthermore, the national government will consult provincial and municipal government authorities about the possibilities of removing roads or other infrastructural provisions from especially core areas in the national ecological network, or at least on the possibility of closing such provisions to the general public.

Where the ecological corridors within the national ecological network intersect with existing infrastructural provisions, the national government will encourage the construction of special provisions to benefit the wildlife. The feasibility of constructing or extending ecological corridors alongside existing infrastructural provisions will be examined (e.g. by establishing woodland alongside roads and waterways, stretches of marshland alongside waterways, ecologically managing ditches and dikes, etc.).

6.3.3 Excavations (for sand, gravel, clay, etc.)

Former clay or gravel pits or similar excavations should be developed in a manner acceptable to the general public. When locating such excavations the possibilities for the area in question to be subsequently rehabilitated and assigned a proper land use must be borne in mind.

Excavations should not take place within the national ecological network. However, in case excavations do have to be sited in the ecological network permits will only be granted for activities not having irreversible effects on (or even beneficial to) the objectives of nature policy in the given area.

The national government will encourage excavations to be sited and operated in such a way that they contribute to the development of general ecological and scenic value, and will encourage nature development to be assigned an explicit role when gravel or clay pits (or other excavated areas) are filled in and redeveloped.

The national government will encourage contractors to devise and submit a redevelopment plan for nature and landscape.

6.3.4 Exploitation of subsurface minerals

Related to the policy on nature conservation and the landscape, the Dutch government will continue its present policy of not granting licences for drilling work for the exploitation of natural gas and oil resources to be carried out in ecologically vulnerable areas.

The Ministry of Agriculture, Nature Management and Fisheries will consider if it is necessary to specify this policy for the national ecological network and areas of specific scenic values. In this, it will continue advising the Ministry of Economic Affairs on permits and concessions, based on current legislation on mineral exploitation.

On the basis of the Environmental Impact Statement on the implications of dumping from oil rigs, the need to spatially co-ordinate mining and drilling in the North Sea to safeguard that area's ecological value is being assessed. Mineral exploitation in the Wadden Sea will continue to be restricted.

6.3.5 Defence

The areas used for military exercises in the Netherlands are situated largely within areas of high ecological value and in wooded regions. A significant part of these areas is included in the national ecological network, in particular in the core areas. The size of the area allocated for military exercises is laid down in the Structure Plan for Military Exercise Areas (1985). When selecting these military terrains their existing ecological value were taken into account as much as possible.

Of the 23,000 hectares of terrain currently used for military exercises 6,000 hectares, primarily in areas regarded as of high ecological value, will be excluded from military use.

The effects of the defence policy in relation to the national ecological network will be reconsidered.

Development and management plans will be devised for most military exercise areas, particularly for those within the national ecological network and especially those which, in addition to their military function, are also used for other purposes (e.g. scientific research, outdoor recreation, water

exploitation). These plans aim at providing the best possible form of management, restoration and development of the phenomena of ecological value. In addition, environmental impact reports will be prepared for the development plans of areas larger than 100 hectares.

The effects of military exercises on nature and the countryside will also be taken into consideration when these exercises are planned. Furthermore, the national government will promote the development of modern simulation technologies.

6.3.6 Forestry

The Dutch government's policy on woodland and forests is laid down in the Long-term Forestry Development Plan (1986). The policy objectives include protecting forest stands, prolonging rotation cycles, adapting the forest composition to the site properties, and giving more attention to the specific functions of the forest. In 18 % of the wooded area in the Netherlands the emphasis will be on the nature conservation function: in such areas no more than 1.4 cubic metres of timber may be harvested per hectare per year.

Only a very small area of woodland has a structure and distribution of species that can be called natural. The national government will therefore take steps to ensure that woodland areas are developed and managed in such a way that they contribute to the sustainable development of the national ecological network. This will result in various measures and initiatives:

- a considerable area of multifunctional woodland will exist within the national ecological network. Ways of improving the ecological value of this type of woodland in order to increase its contribution to the characteristic qualities of the national ecological network will be investigated;
- any opportunities for the creation of ecological corridors, buffer zones, or larger units will be taken full advantage of, or at least kept open;
- additional woodland in which the emphasis is on nature conservation may have to be planted or allowed to develop for the national ecological network;
- the national government will endeavour to promote the planting or development of types of woodland that are almost non-existent in the Netherlands and that could be important for the sustainable development of the ecological network. Specific consideration will be given to the development of the woodland typical of areas alongside rivers and streams and to woodland that is the climax vegetation on marine clay soils. Where such projects are sanctioned, any factors that would adversely influence the area in question will have to be minimized;
- the genetic material of trees and shrubs occurring naturally in the Netherlands, particularly those that are threatened, must be safeguarded. Research will shortly be started to ascertain the feasibility of doing this. Reintroduction could be achieved by building up a supply of indigenous species from Dutch provenances, either by planting stands of these species, or by planting such species in the countryside.

For 18 % of the wooded area in the Netherlands the emphasis is on nature conservation

Recreation and tourism are closely related to nature conservation and the countryside

6.3.7 Water exploitation

The Dutch government's precept, laid down in the National Environmental Policy Plan, is that groundwater should be used judiciously. High priority is given to the conservation and restoration of valuable ecosystems, to providing drinking water and to other uses that require water to be of high quality.

In many parts of the Netherlands nature conservation and the landscape are adversely affected by the exploitation of groundwater. The provincial governments are responsible for taking measures to improve the situation. The national government will promote this (e.g. by carrying out studies in test areas).

A more judicious use of ground-water reserves for domestic and industrial purposes will be promoted, as well as efforts to conserve, restore and develop natural resources in water catchment areas, provided these efforts are undertaken carefully and specific consideration is given to management.

Whenever possible the external influence of water exploitation on areas of high ecological value will be minimized. The collection and exploitation of groundwater for irrigation can also adversely affect certain vulnerable areas of high ecological value: this must be minimized too.

6.3.8 Outdoor recreation and tourism

Recreation and tourism are often closely related to nature conservation and the countryside. Natural and scenic values are often essential on determining the recreational significance of a given area. On the other hand, side-effects of recreation may diminish the quality of nature and landscape. The national government's policy aims to protect vulnerable areas from being overburdened by recreational use.

The Dutch government will promote or ensure that specific consideration be given to nature conservation and the landscape when provisions are made for tourism and recreation in areas of high ecological value.

When planning and carrying out nature development and nature management projects the use of such areas for extensive or secondary recreation will be considered.

In bottleneck situations the government, consulting the tourism and recreation industry and tourism and recreation pressure groups, will consider if forms of recreation that have adverse effects on nature conservation and the countryside have either to be relocated or banned from core areas of the national ecological network.

6.3.9 Fisheries and hunting

The Dutch government wishes to strengthen the mutual interdependence between nature conservation and fisheries. According to the principle of wise use and the conclusions of the Brundtland Commission, the policy of reducing the pollution of the North Sea will be continued and efforts will be made to sustain fish-resources, to make sure the ecological system is not outbalanced by commercial fishing. This implies new measures and initiatives, some of which are described below:

- research will be done to ascertain how the institution of protected zones and the stipulation of more stringent environmental requirements for parts of the North Sea would influence the sustainable development of valuable benthic ecosystems and the conservation of spawning and nursery areas for fish species. In order to protect the coastal waters, permits for fishing in these waters will contain more stringent regulations, if necessary, or certain areas may be excluded from such permits;
- as regards inland fisheries, it will be compulsory for management committees to be set up for all large areas of water managed by the government, to ensure the sustainable development of fish stocks. These committees will have to take ecological considerations into account. Other fish stock managers will also be able to help improve the quality of inland Dutch waters - if necessary, with government encouragement. The government is also prepared to encourage measures aimed at restoring the natural migration of fish species such as sea trout, brook trout and salmon in the aquatic ecological corridors of the ecological network.

As to hunting, the policy will focus on the following activities:
- in order to obtain an insight into the population dynamics of a species and to determine the proper scale of shooting the availability of bag information is required;
- damage to populations and ecosystems resulting from certain hunting practices or methods is to be prevented. The harmful effects of using metallic lead on, for example, several bird species gives cause for a change-over to harmless alternatives;
- the protection of roosting, breeding and foraging grounds may necessitate restrictive measures with regard to hunting. Also in view of the responsibility of the Netherlands for the protection of bird species with a European or Western Palearctic habitat, research will be stepped up;
- with regard to game stock management, the development of game management units will be encouraged. Shooting tenants in such units are expected to bear collective responsibility for the maintenance of game stock and may thus contribute to the general ecological values in the rural area.

7. International nature conservation policy

7.1 Introduction

Nature and the environment are under threat throughout the world. Striking examples of the degradation of ecosystems and ecological functions on a global scale include the destruction of tropical rainforests, desertification, the reclamation and draining of wetlands, the disruption of ecosystems as a result of emissions of pollutants into the atmosphere and into the oceans and the overexploitation and poaching of certain animal and plant species.

These developments are causing great concern in most countries of the world. The 1972 UN conference on the human environment, which led to the establishment of the United Nations Environment Program (UNEP), was a milestone in the general recognition of these problems.

Another initiative that has received much publicity is the World Conservation Strategy (WCS), inaugurated by the International Union for the Conservation of Nature and Natural Resources (IUCN), UNEP and the Worldwide Fund for Nature (WWF). The WCS strategy is based on the tenet that long-term development is impossible unless essential ecological processes are conserved, genetic diversity is retained and the sustainable use of raw materials, species and ecosystems is guaranteed.

The report "Our Common Future" published in 1987 by the World Commission on Environment and Development (also known as the Brundtland Commission) under the auspices of the United Nations has also attracted much attention. This report, which addresses the relationship between environment and development, focuses mainly on the situation in the developing countries and calls for sustainable development in which the natural environment and resources are not overexploited. One of the views put forward in the report is that economic growth is necessary in the developing countries in order to combat poverty. This economic growth should, however, take place in a balanced and sustainable way.

Both the WCS and the Brundtland report have the general support of the Dutch government and will be used to further develop the Dutch international policy on nature conservation.

The Dutch government is implementing international policy on nature conservation in two ways. One is to use international co-operation in the field of nature conservation policy proper. This co-operation finds its practical expression in a number of international consultative bodies, and has already resulted in various international regulations and agreements for the conservation of nature. The second way is to implement the policy by introducing ecological considerations into other relevant foreign policies of the Dutch government. This means giving due priority to nature conservation and the environment when preparing, deciding on and implementing policies of international importance.

7.2 International co-operation in the field of nature conservation policy

In the past, international co-operation in nature conservation was mostly species-oriented. However, there has been a shift towards preserving habitats (e.g. the Wetlands Convention). In the last twenty years there has been a considerable increase in the number of international regulations and consultative bodies in relation to nature conservation. Nevertheless, international collaboration in this area is still neither perfect nor comprehensive. For example, there are important ecosystems (e.g. tropical rainforests) and many endangered species (especially plants and insects) for which no effective regulations exist. Some regulations are supported by too few countries to be truly effective and in other cases the practical enforcement of the regulations is insufficient. Finally, a lack of funds, especially in developing countries, often prevents active international collaboration.

Nevertheless, international regulations and international consultation continue to be both necessary and effective. The Dutch government recognizes that it must set priorities regarding the Netherlands' contribution to the existing regulations and organizations, and to new initiatives. Each regulation or consultative framework must be assessed to ascertain if it improves international collaboration, can help attain the goals set and is the best option available.

A type of co-operation that has proven to be effective and shows great promise are direct contacts with neighbouring countries. The consultations about the protection and management of the Wadden Sea with the governments of Germany and Denmark are a case in point. The Dutch government will continue to give priority to these consultations, which were reflected in the 1982 "Joint declaration on the protection of the Wadden Sea". The Common Wadden Sea Secretariat, established in 1987, may play an important part in strengthening the trilateral contacts between the Wadden Sea countries.

Moreover, in view of the development of a protection regime for the Western Palearctic flyway, a development the Netherlands supports in the context of several treaties and organizations (Conventions of Bonn, Bern, Ramsar), the aim is to widen direct contacts with the countries on the flyway. In this respect contacts with some West African countries have already been established.

Wetland in Tanzania

Within Europe, the co-operation on nature policy in the European Community will be emphasized during the coming years. The Single European Act added new principles to the EC Treaties for actions in this respect. Judging by the 4th EC Action Programme on the Environment (1987-1992), the European Community intends to grant priority to the conservation of the natural heritage in the European Community; the realization of the development of a common environmental policy, including a common nature policy, seems to come within reach. The Dutch government will vigorously encourage the (further) development of a European nature policy.

Within this context it will encourage the following developments:

- the realization of a coherent European network of important ecosystems. The Natura 2000 network could serve as a basis for this;
- consistent legislation on species and area protection. In this respect the Dutch government supports the proposed Council Directive on the protection of natural and semi-natural habitats and of wild fauna and flora (the so-called Habitat Directive).

Furthermore, the Netherlands sets great store by close co-operation of the European Community and the Council of Europe on nature policy. The Dutch contribution to the Council will focus on the encouragement of the nature conservation policy in third countries not affiliated to the EC. It also attaches importance to the significance of the Council of Europe as a consultative forum and as distributor of information about and knowledge of nature and landscape.

Illustrating high ecological values of nature in Central and East European countries: river swamps in the Biebrza Valley, N.E. of Warsaw (Poland)

In view of the recent developments in countries in Central and Eastern Europe the government thinks there are good reasons to widen co-operation with these countries on nature management. The first contacts to this end have been established in the framework of the research into the Western Palearctic flyway, part of which is situated in Central and East European countries. The Economic Commission for Europe of the United Nations is an appropriate framework for multilateral co-operation.

In the global framework, the policy accents in the Dutch contribution to the consultations will be determined in particular by the areas for special attention. In this respect the Wetlands Convention, the Convention of Bonn, CITES and the Antarctic Treaty are important contexts. In addition, it is expected that ratification of the World Heritage Convention will soon be finalized. As a result, extra possibilities are created for the Netherlands to contribute to the conservation of areas of global importance.

As to the international organizations operating on a world-wide scale, it is greatly valued that the International Union for Conservation of Nature and Natural Resources (IUCN) functions well as a platform for consultations with many non-governmental organizations.

The Dutch government considers that permanent support for UNEP and active participation in that Program is important, as UNEP is a framework for effectively addressing global ecological and environmental issues. Therefore it will support UNEP (and FAO) in the elaboration of a policy aimed at conserving the world's biological diversity.

The agricultural posts (Agricultural Attachés and Agricultural Counsellors) of the Ministry of Agriculture, Nature Management and Fisheries abroad will be involved more closely in the implementation of the international nature policy of the Netherlands. To that end a stock-taking will be carried out in the appropriate regions of small-scale projects aimed at nature conservation which might qualify for support from the Netherlands.

7.3 Integration into other fields of policy

In response to the growing concern about the worldwide degradation of nature and environment the Dutch government has decided to reconsider some of its international activities. Several relevant policy lines are described below.

7.3.1 Development assistance policy

Bilateral aid

The government's commitment to integrate international nature conservation policy into its other policies will primarily be expressed in the development assistance programme of the Netherlands, because development assistance shares many elements with the fields of interest of the nature conservation policy.

The Dutch Commission for Ecology and Development Assistance (CECOS) reported in 1986 with the document "Environment and Development Assistance" to the Minister of Development Assistance. This report advised to take into account, more than in the past, the carrying capacity of nature and the environment in the choise and execution of Dutch development activities. The Dutch government endorses this recommendation and has resolved to:

- integrate considerations of nature and environment into the development assistance policy;
- prevent development activities from adversely affecting nature and the environment. Programmes and projects shall be evaluated systematically using this criterion;
- promote activities aimed at conserving, managing and rehabilitating nature and the environment;
- promote the strengthening of institutions dealing with nature and the environment in developing countries.

For the international nature conservation policy it is of great importance that the facilities that are created to provide funding for projects aim at conserving and managing nature in developing countries within the framework of the Dutch development assistance. Projects of this kind will preferably be supported through international organizations and international nature conservation treaties; for example, the International Union for the Conservation of Nature and Natural Resources (IUCN). Furthermore, the Dutch government can give financial support to bilateral activities aimed at conserving and managing undisturbed ecosystems and at conserving biological diversity, providing the areas involved are of considerable ecological importance and are in those regions whereon the present policy concentrates.

The prospects for bilateral action in nature conservation and management will be studied. The resulting opportunities for activities aimed at protecting nature and the environment will be pursued further, where appropriate in collaboration with research institutes and nongovernmental organizations. More generally, whenever possible and necessary the government will give its support to private initiatives in the sphere of nature conservation in the developing countries.

Multilateral aid

The World Bank and the European Development Fund provide funds for large projects, whose wide scope may have far-reaching consequences for nature conservation and the environment. The Netherlands advocates that these multilateral financing organizations rapidly integrate environmental aspects into their policy. They should assess the consequences of multilateral projects for nature and environment at the earliest possible stage.

The Dutch government also aims to ensure that multilateral development assistance will be subject to the same conditions and criteria as bilateral development assistance.

In April 1991 the Netherlands will organize the FAO-Dutch Conference on agriculture and the environment, which will focus on strategies and instruments of sustainable agricultural development. This conference will also serve as a preparation for the UN conference on the environment and development which is to be held in 1992.

Special relationships

The Netherlands Antilles and Aruba, being part of the Kingdom of the Netherlands, are important partners for the joint implementation of development assistance projects aimed at nature conservation.

Flamingo's on Bonaire

One of the ways this can be achieved is by making available, on request, the expertise needed to draw up a policy plan for nature and landscape conservation for each individual island. These plans could play a key role in the discussion on the future development of the islands. An integral plan comprising the recreational, touristic and ecological elements could offer long-term prospects to these islands. Other options are the exchange of civil servants within the framework of the Wetlands Convention and CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).

Historically, the Netherlands have a special relationship with a number of developing countries. The most obvious examples are Indonesia and Surinam. The knowledge on the ecology of these countries accumulated in the Netherlands could be used to set up or intensify specific joint projects in the field of nature protection and management and forest management. The prospects for this will be explored further.

7.3.2 Agricultural policy

International agricultural policy now acknowledges the need to tackle the increasing pollution of the environment and the degradation of the countryside. Policy frameworks that take account of this are being devised at EC level.

The Dutch policy on the conservation of nature will be related to the European agricultural policy in the following ways:

- the development of supplementary measures to counteract the damage inflicted on the soil, the waters, and the natural resources;
- the recognition that extensification of agricultural production will partly have to be based on and be aimed at goals related to the protection of the environment, the protection and development of phenomena of ecological value, and the preservation of the quality of life in the rural areas;
- further encouragement for deploying existing agricultural production capacity to manage areas to conserve and enhance their ecological and scenic value, improve the quality of the environment, and plant woodland;
- the possible effects of EC policies on the natural environment being included in decision-making processes;
- the use of existing Community regulations and measures to make the above mentioned measures possible.

European agricultural policy has had side-effects on the agricultural policies of Third World countries too. This relationship needs to be elucidated, so that additional policies can be formulated.

Systematic assessment of the supply to other countries of Dutch know-how in agriculture and agricultural engineering for possible effects on nature and landscape will be encouraged.

As indicated in chapter 6, in the fisheries policy of the Dutch government more attention will be paid to the protection of non-commercially fished or fishable species. Insofar as it is relevant, this will play a part in the Dutch contribution to the fisheries policy of the European Community.

Internationally, there is great concern about the effects of large-scale drift-net fishing on fish stocks and the ecosystem of the Pacific Ocean in particular. This form of fishing is practised by some Asian countries. Both bilaterally and in the relevant multilateral contexts the Netherlands will continue to labour on a proper implementation and observance of the UN resolution of 22 December 1989, which aims to have large-scale drift-net fishing stopped by 1 July 1991.

7.3.3 Environmental policy

Many environmental problems with an international and/or global dimension have a profound effect on natural processes and therefore on the natural diversity on earth. Examples include:

- problems related to acid rain and the ozone layer;
- accelerated erosion processes;
- over-use of pesticides;
- the greenhouse effect, caused (among other things) by the emission of CO2;
- the pollution of water, soil and atmosphere with chemical waste products.

This is why an international environmental policy is of prime importance for the maintenance of primary environmental conditions that are of direct or indirect importance for (endangered) ecosystems and species. The Dutch government will emphasize the input of nature-aspects in the international environmental policy. The policy measures that the Dutch government intends to take in this area are set out in more detail in the National Environmental Policy Plan.

7.3.4 Policy on international trade

The consequences of obtaining or producing certain raw materials in the exporting countries are manifold for nature and environment, but are usually related to the disappearance of natural ecosystems, erosion, pollution, and an increased application of chemical compounds (such as pesticides). This is certainly the case for tapioca, soya beans, oil palm products, tobacco, and tin ore. In the international context efforts will have to be made to reduce these adverse effects.

The trade in tropical timber and the Dutch role in the framework of, for example, the International Tropical Timber Agreement (ITTA) is dealt with in the Government Memorandum on tropical rain forests. In this respect the attempt should be pointed out to restrict tropical hardwood imports into the Netherlands to timber from countries that pursue a forest policy aimed at conservation and sustainable production.

During the past decades trade in endangered plants and animals has been increasing. An increasing number of plant and animal species have been threatened with extinction because of damage to habitats and over-exploitation. International trade is often the incentive to over-exploitation. This trade is often characterized by a role division in which developing countries are the exporters and the countries of the West are the importers. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulates the international trade in endangered plant and animal species, offering them some protection. Trade in species in acute danger of disappearing is prohibited; trade in vulnerable species is subject to strict limitations.

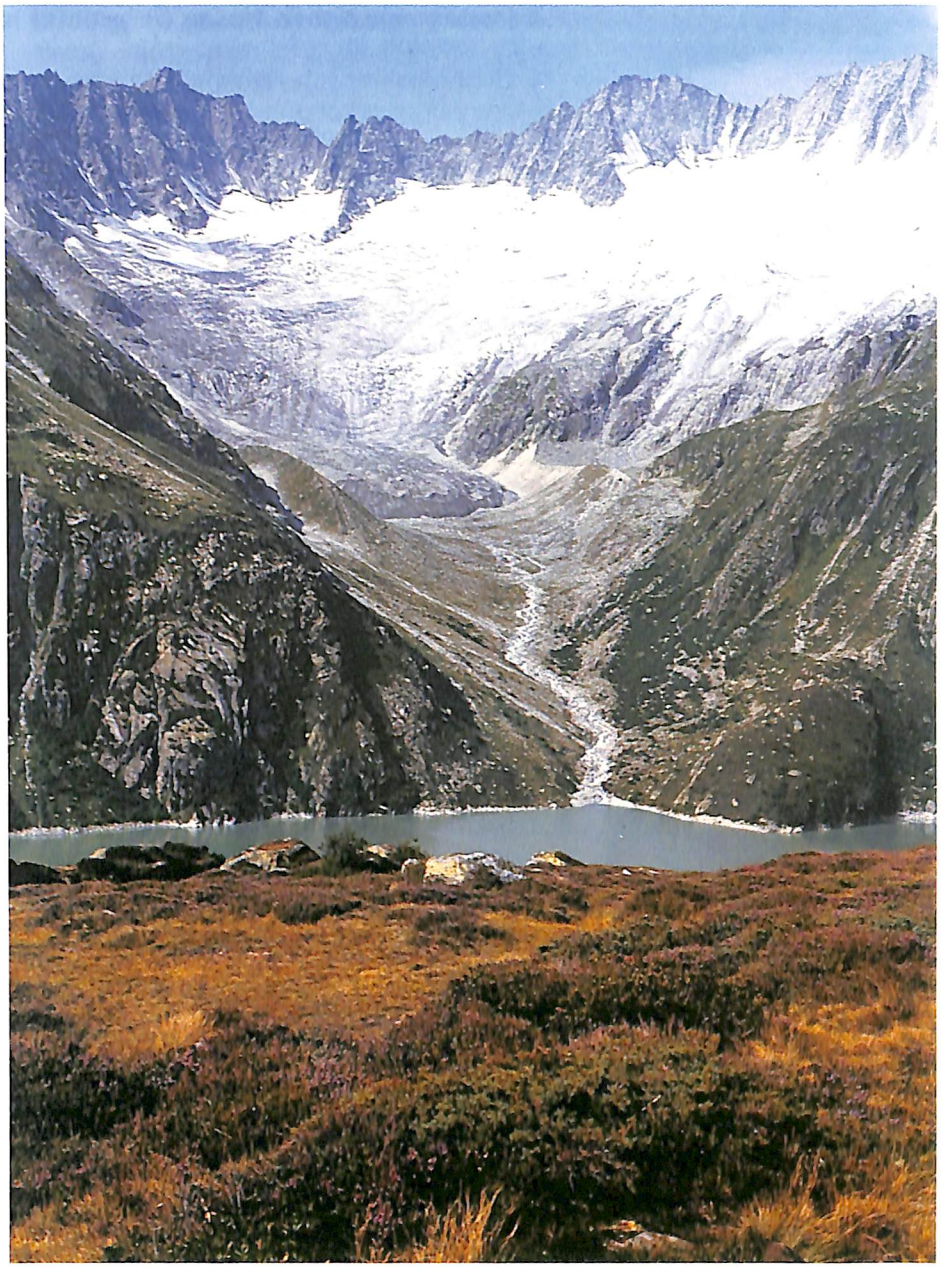
The Minister of Agriculture, Nature Management and Fisheries will continue to give priority to the proper implementation of this Convention. Endangered exotic plant species and large mammals will receive his special attention.

7.3.5 Tourist policy

Large groups of holidaymakers, among them many Dutchmen, go abroad each year. Occasionally this may have important negative consequences for nature and the environment. Cases in point are the problems caused by tourist-recreational developments in coastal zones along the Mediterranean, the European Alps, and, increasingly, tropical countries.

In view of the international character of the problems, solutions are chiefly to be found internationally. One of the relevant international organizations is the World Tourism Organization (WTO). Recently, Dutch efforts have brought the Environment Committee of this organization back to life. Other relevant structures include UNEP, the European Community and the Council of Europe.

Also in view of the knowledge of sustainable tourism available in the Netherlands, the Dutch government will actively contribute to policy developments in this area wherever necessary and relevant. This contribution will be based on the thought that the carrying capacity of an area for tourist development should not be exceeded. Special attention will be paid to structural development of tourism with regard to areas that are valuable and vulnerable from an ecological point of view. The understanding that



The Dutch government will promote sustainable tourism, among others with regard to the Alps

tourist developments may have negative consequences, which is found among an increasing number of tourist and travel organizations, underlines the current need for good information on alternative behaviour. Wherever possible and relevant, the government will take measures and support initiatives with regard to tourism attuned to nature and landscape.

Nevertheless nature and the environment and tourism are also positively related. Nature and landscape are often essential in determining the destinations of international tourism. So, the conservation of nature and landscape are also a major concern for tourism from an economic point of view.

7.4 Policy related to fields of special interest

On the basis of the criteria mentioned in paragraph 4.3 the Dutch government gives priority in its international activities in the field of nature conservation to wetlands, tropical forests, seas and coastal areas, and Antarctica. In addition, priority is given to the protection of migratory birds and large mammals.

7.4.1 Ecosystems

Wetlands

Wetland ecosystems are often very rich and of special significance to birds. Most of the internationally important wetlands are part of a chain for many bird species. In order to preserve the ecological function of the chain, the separate elements must be maintained.

In many parts of the world wetlands are threatened by land reclamation, drainage, and pollution. In the Netherlands considerable expertise has been accumulated on the subject of reclaiming wetlands. This expertise is made available to foreign countries, both by commercial enterprises and by the Dutch government.

In the Netherlands there is also considerable expertise on ways of managing wetlands wisely, in such a way that the ecological value and character of a region is retained. The importance of wetlands for global natural diversity, including the fact that many wetlands in the Netherlands have a wider significance as links in a chain of natural areas, justify the Dutch government playing an active role in the quest for the conservation and wise use of these areas.

Table 2: Wetlands (according to the Wetlands convention of Ramsar) and special protection zones (according to the EC Bird Directive) in the Netherlands

	wetland		special protection zone	
	ha	year of application	ha	year of application
Weerribben	3400	1980	3400	1986
Naardermeer	750	1980	750	1986
Kampina	-		1150	1986
Mariapeel	-		1060	1986
Groote Peel	1340	1980	1320	1986
Wadden Sea	250,000	1984	-	
Biesbosch (partly)	1700	1980	-	
Boschplaat	4400	1980	-	
Griend	23	1980	-	
Oosterschelde/ Markiezaatsmeer	38,000	1987	38,000	1989
Zwanenwater	600	1988	600	1988
Engbertsdijkvenen	975	1989	975	1989
Oostvaardersplassen	5600	1989	5600	1989

Special attention will be given to the wetlands of West Africa, because many birds that are summer visitors to the Netherlands overwinter there. A list is being drawn up of the nature conservation work for migratory birds that should receive priority in four countries of particular importance to these birds: Mauritania, Senegal, Guinea-Bissau and Mali. This list will be used when implementing or supporting appropriate projects (e.g. on management, conservation, research, training). The wetlands of Indonesia and Surinam will also receive special attention. The feasibility of applying the conversion of debts to projects aimed at the conservation of wetlands will be investigated.

Internationally, the government can utilize the Wetlands Convention as an operational framework for the conservation and management of wetlands. The Netherlands played a key role in the conclusion and further development of this treaty, and the government's commitment to this cause will be continued.

Whenever the Netherlands (be it its citizens or its government) cooperates in projects that have an actual or potential influence on the natural state of wetlands, such as in the construction of dams or harbours and in land reclamation projects, the government will attempt to ensure that the ecological interests are adequately taken into account.

Tropical forests

Tropical forests are at once the richest in species and the most endangered ecosystems of our planet. They are disappearing at an alarming rate, as indicated in figure 10. Estimates of the extent of deforestation in the tropics vary from 10 to 20 million hectares annually. This destruction is caused by the land requirements of a rapidly growing population, the local need for fuel and the continuing demand for timber for construction and industrial purposes in the West.

These factors, plus the role of the Netherlands as an importing and transit country for tropical hardwoods, and Dutch expertise on forestry, justify the active participation of the Netherlands in projects aimed at conserving and wisely managing tropical forests.

According to the Government Memorandum on tropical rainforests, the government aims to encourage the conservation of the tropical rain forests by stimulating the development of a balanced and sustainable land and forest use in order to call a halt to current, high-speed deforestation, and to the deterioration and degradation of the environment.

In the memorandum this objective has been worked out in a number of policy strategies. For example, the government will encourage the active protection of the existing, undamaged tropical rain forests.

In principle, support to projects further damaging the tropical rain forests will no longer be given. Afforestation projects will be encouraged nationally and internationally.

In order to reduce felling the framing and implementation of long-term timber production plans will be encouraged. To improve the economic relations with Third World countries, measures will be taken to reduce the debt burden. Research into protection and sustainable use of the tropical rain forests will be stepped up. These and other strategies are described in further detail in the Government Memorandum with regard to activities and measures. The Government Memorandum will be presented to the Parliament by the end of 1990.

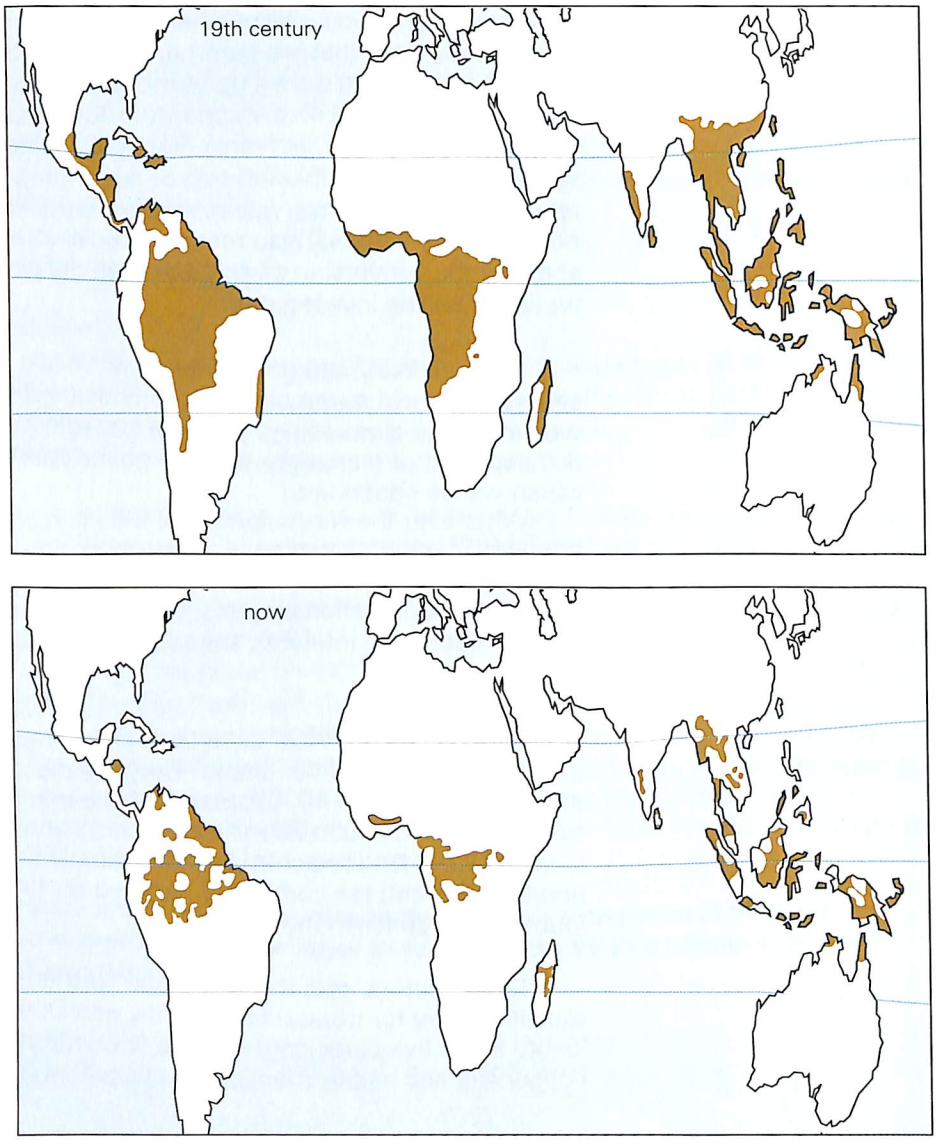
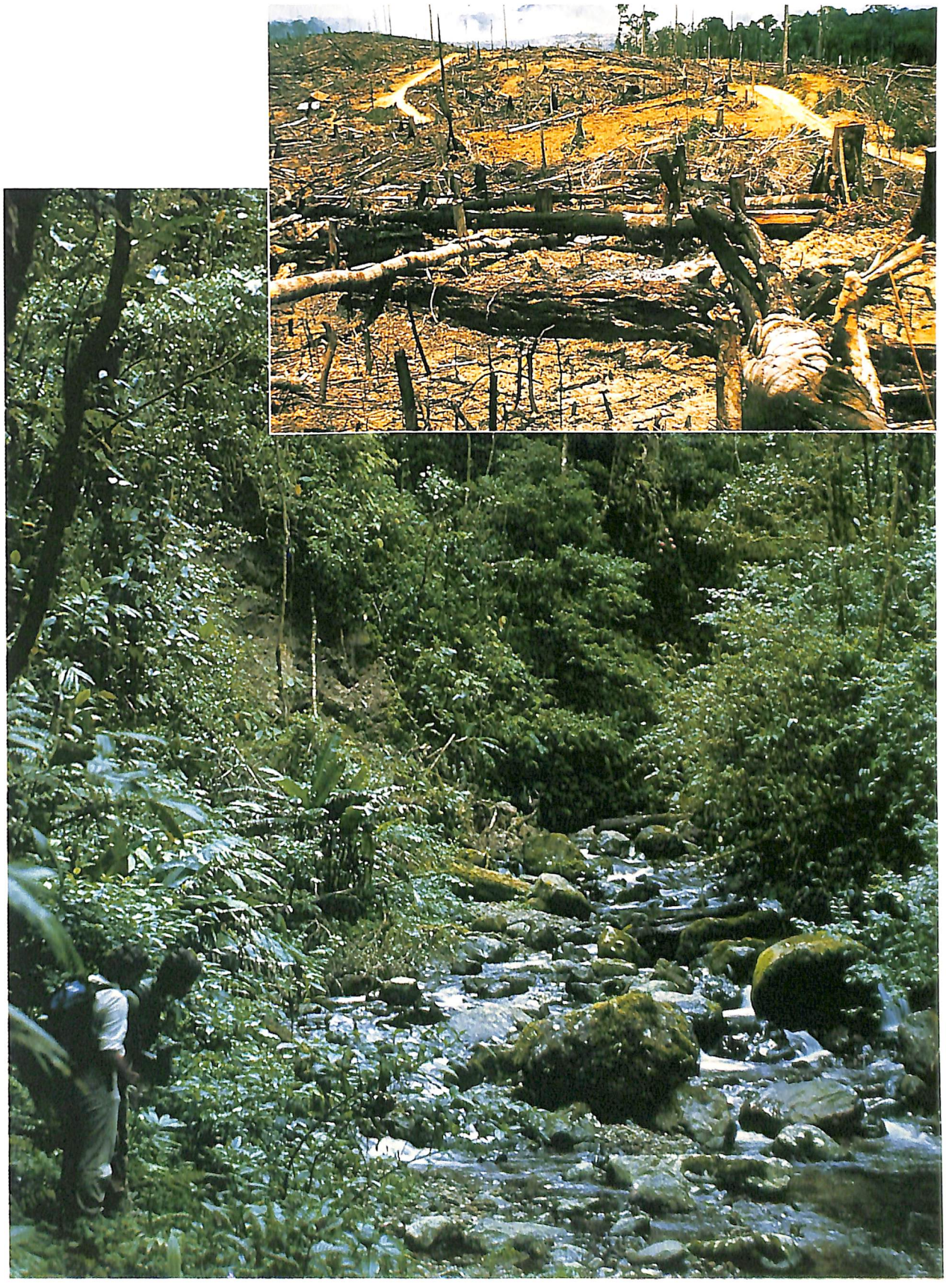


Figure 10:
Decline of tropical forest

Seas and coastal zones

Seas and oceans together cover 72 % of the surface of the earth, and are the home of innumerable plants and animals. The ecological functioning of seas and oceans is becoming increasingly difficult as a result of man's activities. This is especially true for the enclosed and semi-enclosed seas surrounded by densely populated industrialized countries. The Dutch have considerable expertise on the ecological functioning of marine and estuarine ecosystems. This expertise could play a role in international activities and programmes directed at the protection of regional seas and coastal areas in other parts of the world.

The North Sea and Wadden Sea being very important for the nature of the Netherlands will therefore receive special attention. Coastal areas will also receive particular attention, especially because of the function they fulfil for migratory birds.



Strait of Gibraltar coastal zone

The pollution of the North Sea has severe repercussions on nature. The Wadden Sea, being an integral part of the North Sea, also receives its share of these negative effects. The Dutch government intends to implement international nature conservation policy by giving maximum support to initiatives and measures that may lead to an ecologically healthy North Sea, one of the reasons being that this will have beneficial effects on the Wadden Sea. The North Sea conferences, the Paris and Oslo Commissions, and the trilateral Wadden Sea consultation at government level are all important international forums where policy and national measures to reduce the emission of harmful effluents such as blacklisted substances and nutrients are agreed upon.

In the international consultations on the North Sea the Netherlands will encourage the (further) development of an international nature policy targeted to the North Sea. Special attention will be paid to:

- research into and protection of areas of high ecological value in the North Sea;
- research into and protection of endangered fauna of the North Sea area;
- reduction of bird death rates caused by oil dumping.

The Netherlands will continue to give vigorous support to the trilateral government consultations on the Wadden Sea, with a view to preserving the Wadden Sea as an internationally important area of high ecological value.

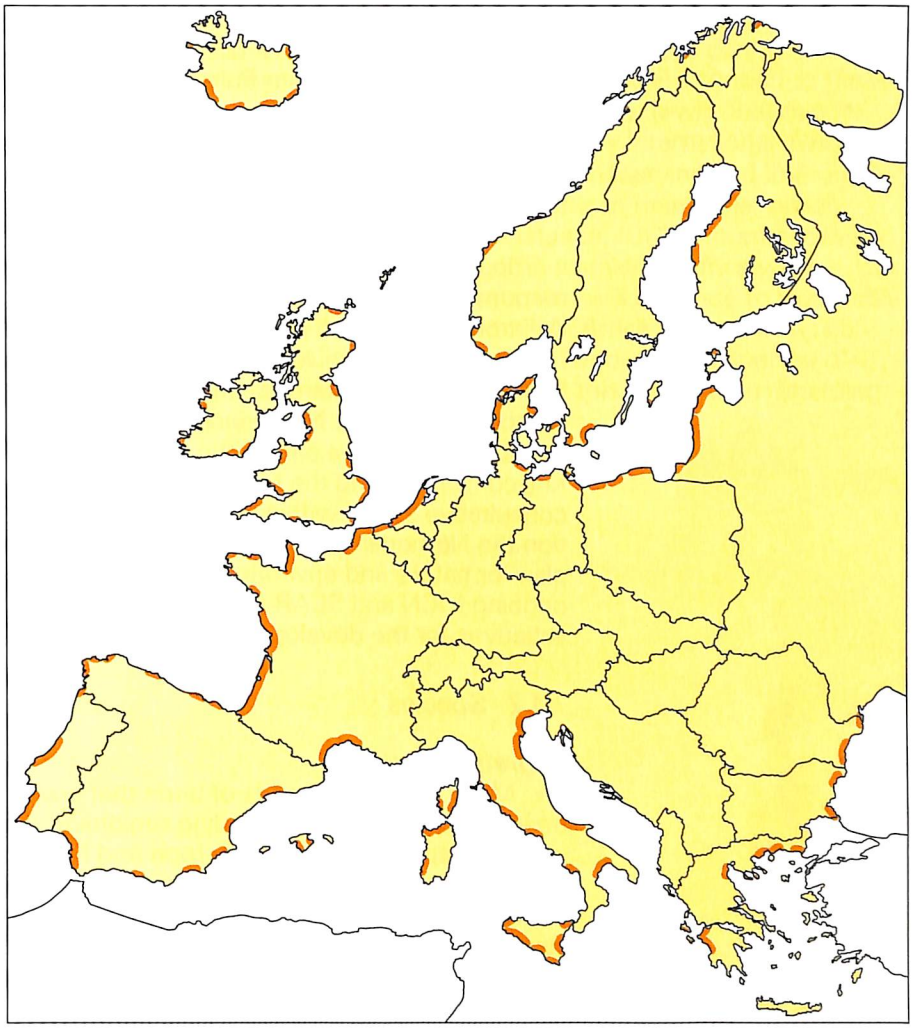


Figure 11: Ecologically important coastal zones (dune areas) in Europe

The Netherlands will pay special attention to the following:

- the further elaboration of the wise use concept with regard to the international Wadden Sea;
- the development of a monitoring programme;
- the development of a view on the management of mud flats.

In addition, the ongoing unification of Europe requires a reconsideration of targets and means in a trilateral context.

Following initiatives of the Council of Europe, at EC level the Netherlands will explicitly ask for extra attention for the natural values of the European coastal zones. More specifically, the Netherlands will stimulate the drawing-up of an integral plan for the conservation of the coastal zones of Europe, in which special attention is given to endangered parts of coastal zones, particularly the Mediterranian coasts.

Whenever appropriate, the Netherlands will also support private initiatives, such as activities of the European Union for Dune Conservation and Coastal Management (EUDC).

Antarctica

Antarctica is the most pristine continent on this planet. Damage to the environment in the South Pole area and the surrounding seas could have dire consequences for the abundance of species on Antarctica itself, as well as for the environment in other parts of the world. Calls are increasingly being made for measures to protect nature and the environment in this area.

In recent years the Dutch government has actively contributed to the responsible management of the natural resources in this area, under the Krill treaty and the as yet unimplemented Antarctic Minerals Convention.

Participation by Dutch nationals and Dutch institutes in scientific research on Antarctica and the surrounding area has been intensified in recent years. The Netherlands has also become more involved in conventions issued as a part of the Antarctic system of treaties, notably in the Krill convention and the Minerals Convention and aspires to receive the consultative status within the framework of the Antarctic Treaty. In addition the Netherlands is committed to the development of an integrated plan for nature and environment management in Antarctica, based on ongoing IUCN and SCAR (Scientific Committee for Antarctic Research) initiatives for the development of an Antarctic Conservation Strategy.

7.4.2 Species

Migratory birds

Many of the thousands of birds that cover vast distances every year travelling between their breeding regions in the North of Europe and their wintering areas in Southern Europe and North West Africa stop in the Netherlands en route. Certain migrant species depend almost solely on the Netherlands as a breeding region. Other species stop here in the course of their journey along the West Palearctic flyway (see figure 9), to rest, feed, moult, or overwinter. An international level of protection is of the greatest importance, as national measures to protect these birds are easily negated if other countries offer the migratory birds less protection. Various international agreements, such as the Bonn Convention, could, in principle, be the framework for co-ordinated efforts on this.

The Dutch government strives to use existing treaties to create a coherent strategy to protect migratory birds. As already mentioned, those West African countries in whose wetlands Dutch summer visitors (especially meadow birds) overwinter will be supported in their efforts to conserve these habitats.

Large animal species

There are many large animals among the numerous plant and animal species whose continued existence is threatened. Large animals are generally very vulnerable; they usually require larger habitats, they are often the final link in a food chain, and they are worthwhile hunting prey for man, who has taken a keen interest in their meat, skins, teeth or horns.

Protecting the habitats of large species of animal usually involves protecting large-scale ecosystems where many other animal and plant species also live. The Dutch public takes an acute interest in and actively supports the protection of large animals such as elephants, whales, rhinoceroses, primates and large cats, and their habitats.

The plight of certain categories of large animals, such as the whales, and the large African animals has aroused particular public concern in the Netherlands. Therefore the government will pay special attention to these species in its international nature conservation policy. It will continue its policy aimed at the protection of the whales via the International Whaling Commission. It will also support work aimed at conserving and improving the management of the habitats of the large African mammals, which habitats have a high ecological value. For instance, IUCN programmes and projects focusing on the habitats of big game animals in Africa will be supported. Furthermore, the Dutch government will continue to vigorously support the protection of the large mammals of Africa under the CITES Convention regulating the international trade in endangered species of wild fauna and flora, and will strictly implement this convention regarding imports into or via the Netherlands.

8. Implementation and finance

8.1 Implementation

The Nature Policy Plan of the Netherlands has a scope of approximately thirty years. In the first eight years geographically and thematically defined projects will be carried out to realize the national ecological network.

The geographically defined projects are of supreme importance for stimulating collaboration among the various administrative bodies, pressure groups and the public at large. It is also much more straightforward to apply legislative and financial regulation (see 5.1.6) via geographically defined projects, and to assess the progress and the results of the policy.

Thematically defined projects are aimed at a specific type of habitat that occurs in several discrete locations, in situations where a nationwide approach offers advantages because the problems are very similar in each case.

Altogether 37 (national) projects for the first eight year of implementation (1990-1997) of the Nature Policy Plan of the Netherlands will be carried out, as summarized in table 3. The major aim of the projects is to contribute to the sustainable conservation, rehabilitation and development of nature and landscape in the given area(s).

Moreover the projects will contribute to gather the necessary information for the final delineation of the national ecological network.
As mentioned in paragraph 5.1 the aim is to minimize the time lag between the provisional and exact delineation of the core and nature devolopment areas. The final delineation will have to be reached within the first five years of the planning period. However, this only accounts for agricultural land within the national ecological network, with regard to the application of the EC Regulation on farmers in hilly and mountainous areas (50,000 hectares), the policy on environmentally sensitive areas (another 100,000 hectares) and the acquisition of land for nature development (50,000 hectares). No further delineation will take place for all other areas within the national ecological network (nature areas, forests, estates, large water areas).

Table 3: The national projects of the Nature Policy Plan of the Netherlands

Geographically defined projects

1. Hilly country of southern Limburg
2. Brooks and stream valleys on higher (sandy) grounds
3. Northern part of Drenthe
4. Regeneration of peatlands (focus on ten peatland areas)
5. Heathland management and conservation
6. Veluwe
7. Utrechtse Heuvelrug - Gelderse Vallei
8. Prospects for nature in the fluvial area
9. Nature development of river forelands
10. Kromme Rhine area
11. Peat bogs, both existing peat bogs and peat bogs that are to be developed
12. Grasslands in the peatland area
13. Ecohydrology of the Wieden-Weerribben wetland (NW Overijssel)
14. Nature development of mid Groningen
15. Systematic safeguarding of coastal dune area (among others by means of the Nature Conservation Act)
16. Rehabilitation and development of ecological values in the coastal dune area
17. Nature development of IJsselmeer and Randmeren
18. Haringvliet - Hollands Diep - Biesbosch (cut-off arms of the sea)
19. Ecological view on Delta area
20. Wadden Sea area
21. Natural development of Voordelta
22. Possibilities for protected zones in the North Sea (see also 6.3.9)
23. Nature in the city/ outskirts

Thematically defined projects

24. Prospects for meadow birds in the Netherlands
25. Wetlands and waterfowl
26. Transboundary nature areas (see also 5.1)
27. Nature and/in Randstadgroenstructuur (Green structure plan for the Randstad)
28. Forests (enhancing its ecological values)
29. Area-oriented environmental and water policy
30. Neutralize and prevent fragmentation of habitats
31. Action programme genetic capital
32. Geomorphological and geological values
33. Cultural heritage of nature and landscape
34. Estates and seats
35. Elaboration of compensation principle in favour of nature and landscape
36. Nature-friendly farming methods (see also 6.3.1)
37. Necessary (additional) investments in nature management

Table 4: Financial efforts of the Dutch government related to the Nature Policy Plan (in million DFL)

	1990	1991	1992	1993	1994
1. policy on environmental sensitive areas	0	14	29	39	53
2. management and maintenance	4	5.5	6	6.5	7
3. management by private owners and managament under the Nature Conservation Act	4	5	5	5	5
4. realization of nature areas	4	4	4	4	4
5. nature development	8	12	28	37	52
6. national parks	1	1.5	2	2.5	3
7. environmental policy on specific areas	11	16	16	16	16
8. species policy	2	4	4	4	4
9. nature conservation policy in general	3	3.5	6	6	6
10. international nature conservation policy	1	1.5	2	2	2
11. staff	3	3	3	3	3
total	41	70	105	125	155

Furthermore, 42 action issues will be implemented within the first eight years of the plan. They constitute actions in the field of species policy, research, National Parks, education and public support, and the environment.

Beside these projects and actions concerning national nature policy, a large number of projects in the international field will be supported with regard to the implementation of the Dutch goverment's international policy on nature conservation (see chapter 7). Examples are projects to conserve tropical rain forests, wetlands, migratory birds in the Western Palearctic Flyway, and African large mammals.

A long-term programme (for five years) will be drawn up to indicate how and when the policies will be implemented. Starting in 1990, this so-called Multi-Year Programme Nature and Landscape will be made public every year, together with the budget for the Ministry of Agriculture, Nature Management and Fisheries.

After four years an interim assessment will be made of the results to date, so that the policies for the remainder of the planning period of eight years can be adjusted if necessary.

8.2 Finance

The policy laid down in this Nature Policy Plan of the Netherlands requires additional financial efforts with regard to the acquisition of land, management, nature development and the subsidization of projects, reserach and (international) organizations. For the Ministry of Agriculture, Nature Management and Fisheries the intensification of policy efforts as from 1990 means the allocation of DFL 41 million in 1990 rising to DFL 155 million in 1994 (see table 4). This intensification will be aimed mainly at area conservation based on the national ecological network, the species policy, the general nature conservation policy, and the international nature conservation policy.

Furthermore, in view of the contribution of non-govermental organizations to the achievement of the objectives of the government's nature policy and their ability to mobilize large sections of the population, the government will continue to support these organizations. At the moment these organizations receive approximately DFL 16 million per annum from the national government for their promotional and educational work and approximately DFL 27 million each year for managing areas of high ecological value.

The extra efforts for the Nature Policy Plan in 1994 will result in a doubling of the budgets for nature conservation and landscape protection of the Ministry of Agriculture, Nature Management and Fisheries.

Colophon

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Pictures

C. Witkamp	lapwing (p. 14), black-tailed godwit (p. 14), purple heron (p. 18), swallowtail (p. 33), demoiselle (p. 55), kingfisher (p. 55), wall lizard (p. 55);
B. Zeijlstra	corridor (drawing, p. 48)
R. Beentjes	heathland with excessive grass-growth (p. 20), heathland after sod cutting (p. 50), Poland (p. 83)
M. Lina-Lindeman	bats (p. 55)
B. Klazenga	otter (p. 67)
World Wildlife Fund, Zeist	wetland Tanzania (p. 82)
World Wildlife Fund/ B.A. de Boer	flamingo's on Bonaire (p. 85)
Rijksherbarium Leiden	rainforest and former rainforest (p. 93)
European Union for Dune Conservation and Coastal management/ A. Salman	coastal zone Gibraltar (p. 94)
J. van der Grijn	Alps (p. 89)

All other pictures:
Ministry of Agriculture, Nature Management and Fisheries.

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National Ecological Network of the Netherlands

A coherent network of sustainable ecosystems that are of (inter)national importance

	CORE AREAS Areas with (inter)nationally important ecosystems	NATURE DEVELOPMENT AREAS Areas offering perspectives for nature development
Dunes		
Low-lying peatland and clay area		
Higher (sandy) grounds and southern Limburg hills		
Fluvial region (river forelands)		
Large bodies of water		
– mudflats		
	ECOLOGICAL CORRIDORS	
To be developed or reinforced		
idem, concerning transboundary nature areas		

0 10 20 30km

Dutch Ministry of Agriculture, Nature Management and Fisheries

Source: Directorate for Nature Conservation, Environmental Protection and Wildlife Department

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